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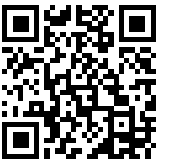

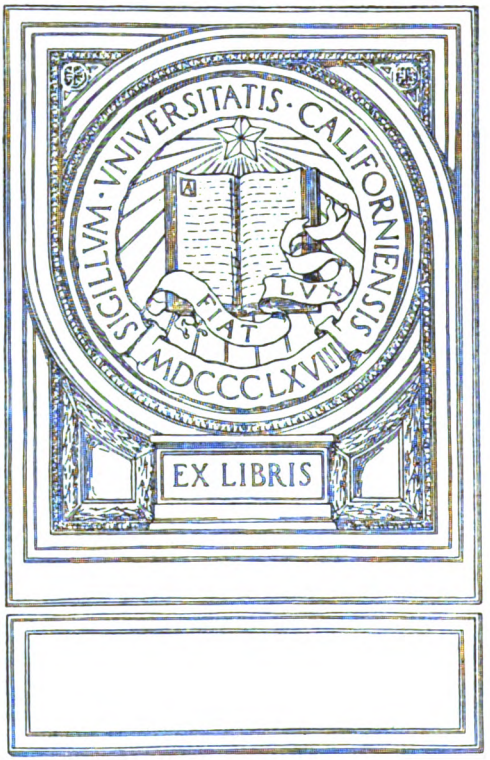

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THE OFFICIAL HISTORY
OF THE
AUSTRALIAN ARMY MEDICAL SERVICES
IN THE WAR OF 1914-1918

VOLUME I

GALLIPOLI
PALESTINE
and
NEW GUINEA

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THE AUSTRALIAN ARMY MEDICAL SERVICES

IN THE

WAR OF 1914-1918

VOLUME I

PART I

THE GALLIPOLI CAMPAIGN

by

COLONEL A. G. BUTLER, D.S.O., V.D.; B.A., M.B., Ch.B. (Camb.)

PART II

THE CAMPAIGN IN SINAI AND PALESTINE

by

COLONEL R. M. DOWNES, C.M.G., V.D.; M.D., M.S., F.C.S.A.

PART III

THE OCCUPATION OF GERMAN NEW GUINEA

by

COLONEL F. A. MAGUIRE, D.S.O. V.D.; M.D., Ch.M., F.R.C.S.

and

CAPTAIN R. W. CILENTO, M.D., B.S., D.T.M. & H.

With 228 illustrations, maps, and graphs

AUSTRALIAN WAR MEMORIAL, MELBOURNE

1930

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N. W.

PREFACE

THE medical history of the Australian forces engaged in the Great War must, in one respect, have a limited scope. Australian administration in the field never reached higher than army-corps control. Apart from the expedition to New Guinea, Australia was not responsible for the complete organisation of any military force. Certain important medical units were not contained within the organisation of the A.I.F., and, though its medical director came to exercise considerable personal influence outside the Australian Army Medical Corps, his authority was always confined within its personnel. The study of what may be termed the medical strategy of the war belongs, therefore, properly to the Imperial history, and therein has been admirably presented.

Nevertheless, this work aims at being more than merely a presentation of the experience of the Australian army medical services. Each of the three parts that make up the present volume is in some respect a comprehensive study of the medical problems arising out of the campaign with which it deals. Thus, in following the Gallipoli Campaign, in which the Australian and New Zealand forces played an extremely important part, the writer has been inevitably concerned with the policy and the conditions that controlled the whole range of events from the front line to the base. A medical breakdown near the front, for example, may be directly due to events far beyond the Peninsula: congestion at the hospital bases in Egypt and Malta may cause a damming back of the stream of casualties on the lines of communication, which may lead to a hold-up at Lemnos and Imbros, and this in turn to a block at the Gallipoli beaches, and so to delay in the clearance from the aid-posts at Anzac. The records recently made available from England by the courtesy of the Historical Section of the Committee of Imperial Defence, through the assistance of Mr. T. H. E. Heyes (representing the Australian War Memorial), are so complete that the tracing of such causes has become largely a matter of industry. Thus, in fulfilling his duty of giving an adequate account of the Australian medical service, the writer of the Gallipoli section of this work found himself committed to the formidable task of dealing with the general problems of a medical service in combined naval and military operations, a

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subject matter which, until this campaign, was almost entirely unexplored, and of which comparatively little has even now been written.

Again, in the Palestine and, particularly, the Sinai campaigns the Australian light horse formed the predominant element in the arm most characteristic of these operations—the mounted troops. An Australian officer—the writer of this part—was, indeed, selected to act as D.D.M.S. to the Desert Mounted Corps, a combined British, Indian, New Zealand, and Australian formation. His contribution, it is believed, though concerned but little with the medical strategy of the campaign, presents the detail of medical work with mounted troops in a completeness not hitherto attempted in connection with modern warfare.

But while in the main this history is concerned only with the carrying out in the A.I.F. of policy determined by the British authorities, its writers feel little diffidence in claiming that its subjects possess general appeal and interest. The experience of a self-contained homogeneous force of the size of the A.I.F. may be more easily collated than that of the vast armies of Europe, and may be of value in illuminating the larger field. For example, there have been obtained from England—in addition to much material, only partly explored, concerning the Gallipoli expedition—the coded cards prepared by the Medical Research Committee for mechanical sorting, containing the total experience of the A.I.F. during 1915 in regard to sickness and wounds. These statistics, more complete than any as yet published of the campaign, have been tabulated, and are discussed in the present volume.[1]

[1] The Statistical volume of the British Medical History has not appeared at the time of going to press, and no information is yet available as to the result of expert scrutiny regarding the value, for statistical purposes, of the clinical records on which rest the figures for sickness in the British Army for the year 1915; their value is known, however, to be less than that of the records for subsequent years. It is, perhaps, desirable therefore to state, in connection with the medical records concerning disease in the Australian Force, which have been used in the preparation of the graphs illustrating the incidence of disease on Gallipoli (*given at pp. 466-7*), that a careful scrutiny was made of samples from the coded cards, in order to test

(*a*) their quantitative accuracy:
(*b*) their qualitative accuracy.

This examination showed that—

1. The requirements in respect of both (*a*) and (*b*) were *fulfilled so far as the use made of the records demanded.*

2. That as regards (*a*) any error would lie in the omission, not in the duplication, of individual records, and that therefore its elimination would have operated in the direction of fortifying the support given to the argument by the figures. The "Admission and Discharge books," are the source of the "Coded cards," and the loss of these books is not entirely—though it is largely—compensated for by the operation of transference of patients through a number

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Again, the carrying out in a dominion army of certain principles laid down by the medical authorities of the British Army opens up the whole field of the relations of the dominion service to that of the Mother Country, by the side of which it took its place in the war organisation of the British Empire. The problems involved in this relationship, and the experience of the medical service in their gradual solution, are matters which, so far from possessing a merely academic interest, come white-hot from the furnace in which have been moulded the latest changes in the British Commonwealth of Nations. For Australia and the other dominions within the British Empire the Great War itself was an episode within a vast experiment in national adjustments that is being made in the course of the onward march of humanity through the ages. In the microcosm of the Australian army medical service are to be seen the uncertainties and compromises, the co-operation without compulsion, the union that is organic rather than formal, which characterise the relations between the various parts of the British Empire and have made its position unique in the history of the world, and which, during the war, not without some strain and friction, held the various medical services of the Empire in a very close and successful co-operation.

To come nearer home, there may be cited the complex questions relating to the ulterior consequences of the war in relation to national health; the cost in impaired efficiency, and in the huge toll of pain and of pensions. With a comparatively small nation under the microscope, the national effects of war injuries may perhaps most easily be traced.

Finally, there is the fact that the events here chronicled formed part of the war effort of a hitherto peaceful dominion, co-operating within the British Empire in a war of unprecedented magnitude and complexity. The administrators of the medical service of the Australian military forces were —like the regimental surgeons, the dental officers, the pharmacists, the nurses—almost without exception civil practitioners, who, with only militia training at most, suddenly became responsible for the medical side of a great military

of medical units. It is therefore desirable to point out that the figures embodied in the graphs are to be regarded as approximations, sufficiently accurate for the purpose of illustrating and validating the general conclusions as stated in the text, but not exact for the purpose of statistical comparison.

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organisation. And one of the chief responsibilities lying upon the editor and writers of this work is to exhibit the problems of that "civilian" service in such a way that, if ever this dreadful experiment must again take place and Australia be again involved in a great defensive war, the experience of the Great War shall have been recorded and illuminated for her medical service, so that old difficulties may be met with foreknowledge, old pitfalls avoided, and, most important, that the new generation may face the new problems that must arise through scientific advance with an assurance and a vigour begotten of that clearer knowledge of the essential principles of medical strategy and tactics in war which has grown out of the experience so dearly acquired in the crises of 1914-1918.

The history of the army medical service in German New Guinea, like that of the military force which seized and occupied the territory, must in the main deal not with the short campaign, but with the long period of military government with its quasi-civil problems of administration and public health. Almost from the first the Australian citizen-soldier was called upon to carry on the government of an extensive tropical country, improvising the administration of a widely scattered white and native population in addition to that of the small garrison. This administration, though nominally ending in 1921, actually merged into that by which the territory was thenceforth governed by Australia under mandate from the League of Nations; its post-war development has therefore been outlined in the final chapter. In that theatre, at least, the dreadful machinery of the war was turned in the end to a notable constructive effort.

This work (to summarise) is a history of problems encountered by the Australian medical service; and the endeavour of the authors has been to exhibit these problems in the order and in the circumstances in which they arose, and to show at each step of a campaign how they were being met, and in most cases gradually overcome, by the help of experience gained in the previous steps. It is this endeavour that has determined the entire arrangement of the work, and, in order to assist the reader in following its thread, the narrative is summarised in the initial paragraph of each chapter. On the comparatively small stage of Australian

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experience it has been possible to illuminate the situation involved in the often conflicting duties of the medical service —the military duty of preserving the fighting force by camp and field sanitation, of sustaining its morale by rapid clearance of the wounded, of reinforcing its reduced and weary garrisons by ensuring the prompt return to duty of men recovered from wounds and sickness; and, on the other hand, the humane duties of minimising pain and injury, or caring for the wreckage that is no longer of military value, and, if possible, fitting it to take again some part in the nation's work. If the reader can but realise that each of the seemingly academic problems provided by "boarding," classification of convalescents, "return to duty," "invaliding," and so forth was, twelve years ago, a cause of intense and ceaseless thought and effort, of perplexing anxiety, of hope and apprehension night and day to those responsible for its solution, that recognition may clothe for him with human interest the dry bones of these chapters. In the light of such realisation this history of the effort of an almost wholly civilian personnel to serve its country and its comrades through the dreadful stresses of the Great War may, even when told in the drab phraseology of military "orders," rekindle at least something of the glow of intense endeavour that we felt in those far-off crucial years.

The present volume necessarily includes an account of the Australian service, for the first half of the war, in Great Britain and Australia. The second volume, in course of preparation, follows the work of the A.A.M.C. in France, and includes a short account of the experience of the medical service with the Royal Australian Navy and Air Force; it concludes with an excursus concerning the medical problems of repatriation, the pension problem, and the care of the maimed.

The most important fount of information has been the records accumulated by the Australian War Memorial under the able directorship of Major J. L. Treloar. The collation of its medical records was carried out during the war largely by the late Captain A. L. McLean, Major P. A. Stevens, Major J. T. Tait, Captains R. J. Hunter and J. R. Drummond, and the present editor. The records of the Defence Department also have been made freely available. In addition to

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grateful acknowledgment to the British authorities, the editor desires to express his special recognition of the fine records of the New Zealand Expeditionary Force, made available through the kindness of its medical historian (Colonel A. D. Carbery). Quotations have, when possible, been acknowledged; but no attempt has been made to present a systematic bibliography. The histories of the British, Canadian, and New Zealand medical services, and the official British and Australian histories of the war, have been looked on as part of the family library. As editor-in-chief of the Australian series, Mr. C. E. W. Bean has been responsible for constantly advising the editor and for several revisions of the text. Much work has also been done upon this by his staff, and it has been revised from the literary standpoint by Professor T. G. Tucker. The editor's special assistant has been Mr. A. J. Withers, who was seconded from the Base Records Office for this duty, and to whose enthusiasm, ability, and exceptional knowledge of Australian administrative records the completion of the undertaking is largely due.

The editor is deeply indebted to Sir Neville Howse, V.C., for support, official and personal, in ensuring the production of this history. Dr. J. H. L. Cumpston, Commonwealth Director-General of Health, and Mr. C. H. Wickens, Commonwealth Statistician, have given valued assistance, the former in connection with the affairs of the Pacific, the latter in the presentation of statistics. Professor F. W. S. Cumbrae-Stewart, of the University of Queensland, most kindly helped in the matter of early records. The inveterate but practical optimism of Mr. W. A. Newman, of the Department of Defence (now Administrator of Nauru), lightened many hours of drudgery and depression. The many members of the Australian army medical service, and its friends, whose help in the form of material, advice, and encouragement it is impossible adequately to acknowledge, will, it is hoped, find their reward in the appearance of the work.

A. G. B.

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Page 18. *Delete* footnote.
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Page 53. Last line of footnote.
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ABBREVIATIONS

A.A. & Q.M.G.	Assistant Adjutant and Quartermaster-General.
A.A.G.	Assistant Adjutant-General.
A.A.H.	Australian Auxiliary Hospital.
A.A.M.C.	Australian Army Medical Corps.
A.A.N.S.	Australian Army Nursing Service.
A.A.S.C.	Australian Army Service Corps.
A. &. D. Books	Admission and Discharge Books.
A. & N.Z.A.C.	Australian and New Zealand Army Corps.
A.C.C.S.	Australian Casualty Clearing Station.
A.C.I.	Army Council Instructions.
Admin. H.Q.	Administrative Headquarters.
A.D.M.S.	Assistant Director of Medical Services.
A.D.O.S.	Assistant Director of Ordnance Services.
A.D.S.	Advanced Dressing Station.
Adv.	Advanced.
A.F.A.	Australian Field Artillery.
A.F.C.	Australian Flying Corps.
A.G.	Adjutant-General.
A.G.H.	Australian General Hospital.
A.I.B.D.	Australian Intermediate Base Dépôt.
A.I. Bde.	Australian Infantry Brigade.
A.I.C.	Australian Instructional Corps.
A.I.F.	Australian Imperial Force.
A.L.H.	Australian Light Horse.
A.M.C.	Army Medical Corps.
A.M.F.	Australian Military Forces.
A.M.S.	Army Medical Service, or Staff.
A.N. & M.E.F.	Australian Naval and Military Expeditionary Force.
A.P.M.	Assistant Provost Marshal.
A.Q.M.G.	Assistant Quartermaster-General.
A.R.C.S.	Australian Red Cross Society.
A.S.C.	Army Service Corps.
A.S.H.	Australian Stationary Hospital.
A.T.S.	Antitetanic serum.
Aust.	Australian or Australia.
Bde.	Brigade.
B.E.F.	British Expeditionary Force.
Bn.	Battalion.
B.R.C.S.	British Red Cross Society.
B.W.I.	British West Indies.

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Cav.	Cavalry.
C.A.M.C.	Canadian Army Medical Corps.
C.C.H.	Combined Clearing Hospital.
C.C.S.	Casualty Clearing Station.
C.G.S.	Chief of the General Staff.
C. in C.	Commander-in-Chief.
C.O.	Commanding Officer.
Coy.	Company.
D. of S.	Director of Supplies.
D. of T.	Director of Transport.
D.A.A.G.	Deputy Assistant Adjutant-General.
D.A.A. & Q.M.G.	Deputy Assistant Adjutant and Quartermaster-General.
D.A. & Q.M.G.	Deputy Adjutant and Quartermaster-General.
D.A.C.	Divisional Ammunition Column.
D.A.D.M.S.	Deputy Assistant Director of Medical Services.
D.A.G.	Deputy Adjutant-General.
D.A.H.	Disordered action of the heart.
D.A.Q.M.G.	Deputy Assistant Quartermaster-General.
D.C.S.	Divisional Collecting Station.
D.D.M.S.	Deputy Director of Medical Services.
D.G.A.M.S.	Director-General, Army Medical Service.
D.G.M.S.	Director-General of Medical Services.
D.H.Q.	Divisional Headquarters.
Div.	Division.
D.M.C.	Desert Mounted Corps.
D.M.S.	Director of Medical Services.
D.Q.M.G.	Deputy Quartermaster-General.
D.R.S.	Divisional Receiving Station.
E.E.F.	Egyptian Expeditionary Force.
E.M.O.	Embarkation Medical Officer.
Engrs.	Engineers.
E.P.I.P. Tent	European Private's Indian Pattern Tent.
F.C.T.	Federal Capital Territory.
Fld. Amb.	Field Ambulance.
G.H.Q.	General Headquarters.
G.O.C.	General Officer Commanding.
G.O.C. in C.	General Officer Commanding in Chief.
G.R.O.	General Routine Order.
G.S.O.	General Staff Officer.
G.S. Waggons	General Service Waggons.
G.S.W.	Gunshot wound.
H.E.	High explosive.

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H.M.S. – – – – – His Majesty's Ship.
H.M.T. – – – – – His Majesty's Transport.
H.Q. – – – – – – Headquarters.
H.S. – – – – – – Hospital Ship.
I.C.C. – – – – – Imperial Camel Corps.
I.C.C. Bde. – – – – Imperial Camel Corps Brigade.
I.C.T. – – – – – Inflammation of Connective Tissues.
I.G.C. – – – – – Inspector-General of Communications.
Inf. – – – – – – Infantry.
I.M.S. – – – – – Indian Medical Service.
L.H. – – – – – – Light Horse.
L. of C. – – – – – Lines of Communication.
M.A.C. – – – – – Motor Ambulance Convoy.
M.D. – – – – – – Military District.
M.D.S. – – – – – Main Dressing Station.
Med. – – – – – – Medical.
M.E.F. – – – – – Mediterranean Expeditionary Force.
M.G. – – – – – – Machine-gun.
M.O. – – – – – – Medical Officer.
M.O.H. – – – – – Medical Officer of Health.
M.T. – – – – – – Mechanical Transport.
Mtd. – – – – – – Mounted.
N.A.D. – – – – – No appreciable disease.
N.C.O. – – – – – Non-commissioned officer.
N.S.W. – – – – – New South Wales.
N.T.O. – – – – – Naval Transport Officer.
N.Y.D. – – – – – Not yet diagnosed.
N.Z. – – – – – – New Zealand.
N.Z. & A. Div. – – New Zealand and Australian Division.
N.Z.E.F. – – – – New Zealand Expeditionary Force.
N.Z.M.C. – – – – New Zealand Medical Corps.
O.C. – – – – – – Officer Commanding.
O.R. – – – – – – Other Ranks.
P.B. – – – – – – Permanent Base.
P.D.M.S. – – – – Principal Director of Medical Services.
P.H.T.O. – – – – Principal Hospital Transport Officer.
P.M.L.O. – – – – Principal Military Landing Officer.
P.M.O. – – – – – Principal Medical Officer.
P.N.T.O. – – – – Principal Naval Transport Officer.
P.O.W. – – – – – Prisoners of war.
P.U.O. – – – – – Pyrexia of uncertain origin.
Q.A.I.M.N.S. – – – Queen Alexandra's Imperial Military Nursing Service.
Q. Branch or "Q." – Quartermaster-General's Branch.

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Q'land	Queensland.
Q.M.	Quartermaster.
Q.M.G.	Quartermaster-General.
R.A.F.	Royal Air Force.
R.A.M.C.	Royal Army Medical Corps.
R.A.M.C. (T.C., or T.)	Royal Army Medical Corps (Temporary Commission).
R.A.M.C. (T.F.)	Royal Army Medical Corps (Territorial Force).
R.A.M.C. (S.R.)	Royal Army Medical Corps (Special Reserve).
R.A.N.	Royal Australian Navy.
R.A.P.	Regimental Aid Post.
R.A.S.C.	Royal Army Service Corps.
Regt.	Regiment.
R.M.O.	Regimental Medical Officer.
R.N.	Royal Navy.
R.N. Div.	Royal Naval Division.
R.P.	Relay Post.
S. Aust.	South Australia.
S.M.O.	Senior Medical Officer.
S.T.A.	Septic Traumatic abrasions.
Stn.	Station.
T.	Transport.
T.A.B.	Mixed Vaccine Typhoid and Paratyphoids A and B.
Tas.	Tasmania.
Temp.	Temporary.
T.F.	Territorial Force.
T.H.S.	Temporary Hospital Ship.
V.A.D.	Voluntary Aid Detachment.
V.D.	Venereal Disease.
V.D.H.	Valvular Disease of the Heart.
Vic.	Victoria.
W. Aust.	Western Australia.
Yeo.	Yeomanry.
Y.M.C.A.	Young Men's Christian Association.

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CHRONOLOGY

(*Italic* type indicates events with which this volume is immediately concerned.)

1903—An Australian (Commonwealth) Military Force organised.

1911—Compulsory military training for service within Australia.

1914.

July 28—Austria declares war on Serbia.
Aug. 1—Germany declares war on Russia.
" 3—Germany declares war on France.
" 4—Germany declares war on Belgium. Great Britain declares war on Germany.
" 23—Battle of Mons begins. Japan declares war on Germany.
Sept. 6-10—Battle of the Marne: German invasion repelled.
" 11—*A.N. & M.E.F. lands on New Britain.*
Oct. 31—Turkey enters the war.
Nov. 1—*First Australian contingent leaves Australia.*
" 24—*Formation of Australian and New Zealand Army Corps.*

1915.

Feb. 19—Dardanelles outer forts bombarded by Allied warships.
March 10-13—Battle of Neuve Chapelle.
" 12—Sir Ian Hamilton commands Mediterranean Exped. Force.
" 18—Allied naval attack on Dardanelles forts repulsed.
April 22—Second Battle of Ypres: poison gas used by Germans.
" 25—*Allies land at Dardanelles.*
May 6-8—*Second Battle of Krithia.*
" 23—Italy declares war on Austria.
June 5—*Surgeon-General Ford assumes entire administrative control of A.A.M.C. in Egypt.*
Aug. 6-10—*Battles of Lone Pine, Sari Bair, and Suvla Bay.*
" 21—Italy declares war on Turkey.
" 25—Germans occupy Brest-Litovsk.
Sept. 25—Battles of Champagne and Loos begin.
" 28—Capture of Kut-el-Amara by General Townshend.
Oct. 5—Allied troops land at Salonica.
" 15—State of war between Bulgaria and Great Britain.
Dec. 1—*Colonel Howse replaces General Williams as D.M.S., A.I.F.*
" 20—*Evacuation of Suvla and Anzac completed.*

1916.

Feb. 11—*Reorganisation of A.I.F.: I and II Anzac Corps formed.*
" 16—Erzerum taken by Russians.
" 21—Battle of Verdun begins.
March 15-16—*Despatch of Australian infantry to France begins. Anzac Mounted Division formed.*
" 19—Egyptian Exped. Force formed: General Murray commands.

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April 29—Surrender of General Townshend at Kut.
May 21—*A.I.F. Administrative H.Q. established in London.*
May 31-June 1—Battle of Jutland.
June 8—Compulsory enlistment in Great Britain begins.
July 1—Battles of the Somme, 1916, begin.
„ 23—Battle of Pozières Ridge begins.
Aug. 4-5—*Battle of Romani.*
„ 27—Roumania enters the war.
Oct. 28—First conscription referendum in Australia.

1917.

Feb. 1—German "unrestricted submarine warfare" begins.
March 12—Russian revolution begins.
„ 26-27—*First Battle of Gaza.*
April 6—United States of America enters the war.
„ 9—Battles of Arras, 1917, begin (Australians engaged at Bullecourt, April 11, May 3, *et seq.*).
June 7-14—Battle of Messines.
„ 25—First contingent of American troops arrives in France.
July 31—Third Battle of Ypres begins.
Sept. 20—Australian infantry attack in Flanders. Battle of the Menin Road begins.
„ 26—Battle of Polygon Wood begins.
Oct. 4—Battle of Broodseinde.
„ 12—First Battle of Passchendaele.
„ 27—*Third Battle of Gaza begins.*
Dec. 9—*Capture of Jerusalem.*
„ 20—Second conscription referendum in Australia.

1918.

Jan. 1—Australian Corps formed.
March 3—Treaty of Brest-Litovsk between Germany and Russia.
„ 21—Final German offensive in France begins.
July 18—Franco-American attack north of the Marne.
Aug. 8-11—Battle of Amiens.
Sept. 19—*Battles of Megiddo, Sharon, and Nablus begin.*
„ 30—*Capture of Damascus.*
Oct. 31—Armistice with Turkey comes into force.
Nov. 11—Armistice with Germany signed.

1919.

Jan. 18—Peace conference opens at Versailles.

1921.

May 9—*Military occupation of German New Guinea ends.*

1926.

Dec. 15-22—*International Pacific Health Conference held in Melbourne.*

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CHAPTER I

THE EVOLUTION OF THE AUSTRALIAN ARMY MEDICAL SERVICE

THE medical service with the Australian force in the Great War, though recruited *de novo,* was in organisation identical with the voluntary medical service of the citizen forces of the Commonwealth. Nor was the latter a mere "valley of dry bones," requiring the breath of a great summons to awaken it to life. Though mainly a part-time service, it had been organised on the model of the British. A worthy tradition already animated it, and a high standard of training and discipline prepared it for immediate use. Therefore, before proceeding to describe the mobilisation of the medical service of the citizen army of Australia for home defence, and the raising and preparation of the medical service attached to the Australian forces in the war, it is desirable to give a short account of the origin and evolution of the Australian Army Medical Corps.

* * *

Origins

Military medical service in some form has existed in Australia since the arrival of the first colonists in 1788, and from an early date its evolution has been continuous. The Army Medical Service of Australia, like her defence system in general, had a twofold origin, namely, in the medical establishment of the small permanent force, and in that which in each colony[1] grew up with the voluntary citizen forces (the unpaid "volunteers" and the partly paid "militia").

Regular Service

Up to 1870 (that is to say, until fifteen years after the granting of responsible government to the Australian colonies) the small military needs of the colonies, safe under the protection of the British Navy, were almost entirely met by drafts of British troops. Attached to each of these was a small medical establishment, arriving for the most part in charge of convict or

[1] New South Wales, Queensland, Victoria, South Australia, Western Australia, and Tasmania.

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emigrant ships and its duties being chiefly those of medical attendance on the official personnel, but including also superintendence of public hospitals. In 1870 the British troops were withdrawn and small colonial regular forces were enrolled; but no definite provision was made for a full-time medical service until 1891, when there was formed in New South Wales a "Permanent Medical Staff Corps."[2] Its personnel was administrative, instructional, and in addition carried out the medical duties in connection with the permanent troops, and still persists in the permanent administrative and instructional cadres of the Defence Department of the Commonwealth.

Volunteers

Side by side with the regular forces there developed the various voluntary "trained band" activities—manifestations of the instinct for personal effort in defence of home and country. The first "volunteer corps" was raised *ex tempore* in 1801 in New South Wales, and in 1803 (when the Napoleonic wars were at their height) the inhabitants were summoned to organise for defence.[3]

Subsequently to the Napoleonic period, waves of "war scares" rippled to Australia from European troubles, and, with fluctuations that synchronised with these, the voluntary movement developed along two lines, the purely "volunteer" —in which the civilian medical profession participated, though not on organised lines—and the partly paid "militia." In connection with the latter there grew up in each colony medical services on which has been founded, with little change, the present voluntary system of Australia. In 1888 New South Wales established the first official "Volunteer Army Medical Corps," from which, a few years later, was recruited the "Permanent Medical Staff Corps" mentioned above.

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[2] It may be noted that the medical service in the British Army dates as a military organisation only from 1855, rank having previously been only "relative" (corresponding to that now granted to "officers" of the "Red Cross"), and it was not until 1873 that a Royal Warrant organised the medical service "in one staff or department" of the army. (*The Army Book for the British Empire*, by Lieut.-Gen. W. H. Goodenough and Lieut.-Col. J. C. Dalton, *p. 269.*)

[3] It was during these wars that medical work, though imperfectly organised, began to be of real importance from a military as well as from a humane point of view. The work of Napoleon's surgeons—the celebrated Baron Larrey, who introduced the light ambulance waggon, and Baron Percy, who created the "stretcher-bearer"—and that of Wellington's chief medical officer, Sir John McGrigor, "the father of military hygiene," form matter for some of the most interesting pages of medical history.

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Variations in Colonies

While the services in the different colonies were in the main much alike—all being in fairly close conformity with the British—they differed considerably in detail, especially in respect of pay, conditions of service, and relative efficiency. Before Federation an army medical service had been started in each colony, though (except in New South Wales) their establishment was rudimentary. Reports of the Commandants for 1901 are of interest:—

Queensland—"The members of the Corps have worked well with the meagre equipment in their possession in spite of the disadvantages under which they labour. Ambulance and other equipment have again been excluded from the estimates."

Western Australia—"There are no separate military departments in W.A., such as for Supply, Transport, or Medical." The service consisted of a total of 20, all ranks.

South Australia—"Medical Staff Corps of South Australia has increased from 40 to 45 in the year. The ambulance waggon was converted to a general service waggon and sent to Africa with the First Contingent. The Corps is urgently in need of modern equipment."

Tasmania—"The Section of the Bearer Company, organized 1899, has been increased to 23 of all ranks."

Victoria—The "Medical Staff" consisted of 16 officers; the establishment of the "Ambulance Corps" of 1 officer and 45 other ranks.

New South Wales—A very different tale comes from N.S.W. In 1900 establishment and strength was 36 officers and 122 other ranks (of whom 15 officers and 47 other ranks were at the time absent in South Africa). The report of the Acting P.M.O. states—"The offer of the A.M.C. to provide a half Bearer Company to a Field Hospital for active service was accepted. The half unit acquitted itself in such a manner as to earn the highest praise from the Imperial Authorities, who cabled for the other half, and in doing so paid a high compliment to our Corps."

(In 1897 Major-General G. A. French, inspecting all the States, said: "In New South Wales the small permanent section and the partly paid company form a nucleus readily expanded when necessary. Colonel Williams, who has worked up this branch *ab initio*, is deserving of every credit for his zeal and for the excellent equipment of waggons, etc. I had every reason to be satisfied with my inspection and with the drills and turn-out of the N.C.O's and men.")

Sudan War

Australian army medical officers and other ranks first saw war-service in 1885, when the Principal Medical Officer of New South Wales, Colonel W. D. C. Williams, and a small medical detachment accompanied the N.S.W. Contingent which took part in the Suakin Campaign.

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South African War

In the South African War of 1899-1901 the Australian "contingents" were in most cases accompanied by a proportion of medical field units, which played a not unimportant part in the medical work of the various forces in which the Australians were included. During this period the Australian colonies became federated into the Commonwealth of Australia, and changes in the character of successive contingents indicate stages in this important evolution. The first (October, 1899) and second (January, 1900) were sent at the expense of various colonies, the medical service being supplied almost entirely by New South Wales. In March, 1901, an "Imperial draft" went at British expense.

After Federation—Commonwealth forces

In 1901 Colonel Williams—who commanded the medical detachment with the contingents from New South Wales—having been recalled to Australia to complete the organisation of the Army Medical Service of the Commonwealth (laid down by him in 1897), despatched an "Australian Army Medical Corps" field hospital and bearer company. In all, 30 medical officers and 338 other ranks were sent, with 265 horses, 16 ambulance waggons, and 46 transport carts. In addition a Lady Superintendent (Miss E. J. Gould) and 13 nurses accompanied the second contingent. The experiences of the various regimental establishments, bearer companies, and field hospitals were varied and eventful,[4] and the Service achieved no little prestige, especially for initiative and resource in collecting and tending the sick and wounded in the field.[5] In the British official medical report on the war the Principal Medical Officer (Surgeon-General Sir W. D. Wilson) said: "These Colonial medical units were more mobile than the regulation field hospital or bearer company.

[4] The field organisation of the British medical service at this time comprised, as independent commands, bearer companies and field hospitals; one of each per brigade. No independent sanitary organisation existed, nor any provision for special training in sanitation. Administrative control was by "Principal Medical Officers" (P.M.O's) acting directly under the G.O.C. of large formations and Lines of Communication, and "Senior Medical Officers" (S.M.O's) of brigades, who combined administrative duties with command.

[5] The only Victoria Cross ever granted to a member of an Australian medical service was that gained in this war by Captain N. R. Howse who, in July 1900, as a member of the N.S.W. Army Medical Corps, in the action at Vredefort, "went out under heavy crossfire, picked up a wounded man and carried him to a place of shelter."

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This was partly due to the difference in the equipment and in the waggons. . . . The equipment was exceedingly good and practical . . . it (the N.S.W. unit) had its own draft animals and was thus quite independent and self-contained. Its success is an example of what may be done by a field unit which is not dependent on local conditions for its mobility."

1902 Scheme

The inauguration of Federal Government in 1901 had begun a new era: with the creation of a homogeneous Australian military force, an Australian army medical service sprang into life.[6] A general order of 30th July, 1902, promulgated the change from State to Federal organisation of the Commonwealth Military Forces, and laid down a scheme which, receiving statutory recognition, has, with certain important changes, remained the basis of their organisation till the present time.

The essential features of that scheme so far as they affect the Medical Service may be set out in brief:—

The whole of the existing Army Medical Services of each State will be dealt with as one Corps and will be styled the "Australian Army Medical Corps." The Corps shall comprise—

(*a*) Permanent Army Medical Corps (nucleus only).
(*b*) Militia Army Medical Corps.
(*c*) Volunteer Army Medical Corps.
(*d*) Reserve of Officers.
(*e*) Army Nursing Service Reserve.

The administration and command of the Australian Army Medical Corps is vested in the Director-General, who will also be responsible to the General Officer Commanding for the drill, discipline, efficiency, and statistics of the Medical Service.

The Director-General is also responsible that the supply of medical and surgical field equipment, ambulance, and field transport is adequate and in good order, as far as funds at his disposal will permit.

The function of the Director-General was laid down in a letter by Major-General Sir Edward Hutton[7] to Surgeon-General Williams—"I wish the medical department to be organised on the same principle as that which holds in the case of the artillery and engineer services. . . . The difference will be that as Director-General you will command the Medical Service of the Commonwealth as well as being

[6] It may be noted that this event coincided closely in time with the recognition in full degree of an army medical service as a part *sine qua non* of military organisation—a recognition towards which the appalling mortality through sickness in the South African War largely contributed.

[7] Later Lieut.-General. He was responsible for the welding into an Australian army of the military forces of the States, and took a keen interest in the building-up of its medical service.

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my staff officer. . . . You will require staff officers for medical service representing you on the Head-Quarters staff of each State in the same position as you hold in the staff of the Commonwealth."

Under the Director-General ("D.G.M.S.") the permanent medical service consisted of small instructional cadres whose members were charged with duties in connection with permanent troops, had the care of transport vehicles and equipment, and also acted as technical instructors to the personnel of the militia medical service. The militia and volunteer army medical corps provided for the Commonwealth Forces—

Regimental Medical Establishments.
Mounted Bearer Companies.
Infantry Bearer Companies.
Field Hospitals.

No provision was made for line-of-communication and base medical units. A District[8] Principal Medical Officer (part time) from the militia army medical corps controlled the service in each District.

A reserve of officers "for service when required upon a national emergency" was created from retired officers of the army medical service and "duly qualified and registered members of the medical profession" willing to enrol. It was laid down that

> the Australian Army Nursing Service is a voluntary body and is formed for the purpose of supplying trained and efficient nurses under an organised system, available for duty at Base Hospitals and Stationary Field Hospitals in times of national emergency.

A uniform, modelled on that of the Imperial Service, was prescribed. No provision was made for any form of dental service.[9] The pharmaceutical profession was inadequately recognised, nor was any special organisation created with a view to the prevention of disease.[10]

In matters of interior economy—rank, status, promotion, and so forth—the Service was modelled almost exactly on the British, an exception being that first appointment of

[8] The Commonwealth defence scheme was based on "military districts" which corresponded approximately, though not exactly, to the six States of the Commonwealth. *See sketch on p. 19.*

[9] That the Australian medical service was not to blame is proved by a recommendation in 1906 from the D.G.M.S. for a "Commonwealth Dental Service." According to British precedent, this was refused by the Military Board as "not required."

[10] The situation in the British Army was then similar in this respect.

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1. THE NEW SOUTH WALES MEDICAL STAFF CORPS SCHOOL OF INSTRUCTION HELD AT NEWCASTLE, 5TH AND 6TH MAY, 1896

The officers standing at either end belonged to the N.S.W. Artillery Corps. The others are: (*standing, left to right*) Surgeon-Capt. J. L. Beeston, Surgeon-Lieut. F. H. Wrigley; (*seated*) Surgeon-Capt. W. L'E. Eames, Surgeon-Colonel W. D. C. Williams, and Dr. W. J. R. Nickson, N.S.W. Naval Brigade.

Defence Department Photograph.
Aust. War Memorial Collection No. H13980.

2. A PARADE OF A COMPANY OF THE NEW SOUTH WALES MEDICAL STAFF CORPS IN THE GROUNDS OF GOVERNMENT HOUSE, SYDNEY, 1898

The commanding officer is Surgeon-Major R. V. Kelly (*mounted*). The other officers are: (*left to right*) Surgeon-Captains R. E. Roth and F. W. Hall, and Lieut. E. J. Beauman (quartermaster). On the extreme left of the picture is Warrant Officer J. Bond.

Defence Department Photograph.
Aust. War Memorial Collection No. H13981.

To face p. 6.

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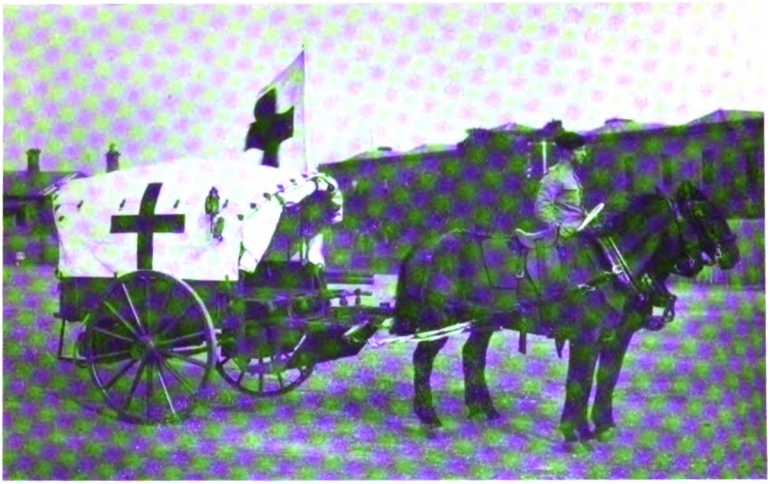
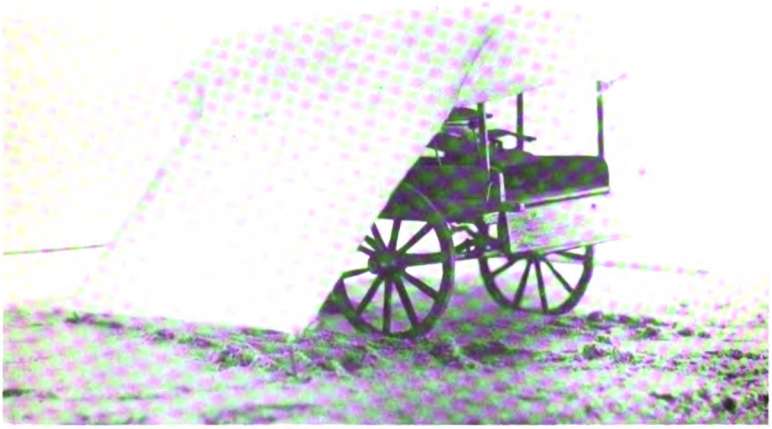


3. Ambulance waggon built to the direction of Colonel W. D. C. Williams as an outcome of experience gained in the South African War

Defence Department Photograph.
Aust. War Memorial Collection No. H13982.



4. Light ambulance waggon designed by Colonel Williams

Waggons of this type were taken to Egypt by some field ambulances in 1914.

Defence Department Photograph.
Aust. War Memorial Collection No. H13983.

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medical officers was to the rank of captain. Promotion and posting was by States, within establishment and conditional on the passing of examinations. The gradation list was Federal.

1902 Scheme succeeds

The Royal assent to an Australian Commonwealth acted like the crystal dropped into an over-saturated solution, and solidified a strong but hitherto unformed national sentiment. Like Federation, the medical scheme of defence "caught on." Though peace service[11] was purely voluntary, the medical establishments required for the new military organisations were satisfactorily filled. From the beginning the scheme, on the whole, worked well. As Director-General, Surgeon-General Williams aimed at a service with a distinctive character of its own, holding that a high standard of training could be assured only by such independence. This principle was carried to the extent of making the Australian medical transport vehicles on a special pattern to serve Australian requirements. The same principle was applied to tentage.

The chief difficulty—as always during peace—was that of securing adequate funds to maintain transport and equipment and to meet the expenses of camps of training.[12] Small States were apt to receive adverse treatment in the allocation of funds, which at times led to difficulty in filling their establishment of medical officers. To maintain the supply of "other ranks" also involved much personal keenness and enthusiasm on the part of Principal Medical Officers. In peace times the medical service is not a popular one. In particular, the recruiting of regimental stretcher-bearers (who were combatants) caused some difficulty and brought about the arrangement that all bandsmen, in addition to their duties as such, should be trained as stretcher-bearers and should be allotted to companies in time of war. Training for all ranks was carried out by a system of individual "home" training in first aid, stretcher drill, and so forth, by "camps of continuous training" (eight days per annum), and by "schools of instruction." In this connection the

[11] Every fit Australian male between 18 and 60 is liable for service in the defence of his country, if invaded.

[12] Medical officers were allowed £1 a day while on duty, other ranks in proportion.

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D.G.M.S. laid down the principle that every officer, non-commissioned officer, and man should reach a higher standard of knowledge of military duties than his actual rank demanded, and should acquire a thorough understanding of all the work of a soldier in the field. The importance of promoting individuality and self-reliance by intelligent appreciation of duties was strongly emphasised for all ranks. Officers took part in military staff rides.[13]

Changes after S.A. War

In 1906 the British reorganisation consequent upon experience in South Africa was followed, and, to promote more effective co-operation, "bearer companies" and "field hospitals" were united to form a single unit—the "field ambulance" (or "light horse field ambulance"). The field ambulance comprised 10 officers and 224 other ranks, divided into "tent" (nursing and administrative) and "bearer" divisions. It was provided with special transport, and was organised in three sections,[14] "A," "B," and "C," each consisting of bearer and tent sub-divisions, and each self-contained for service, being equipped to hold fifty cases. Each bearer division was also detachable as a whole for service. Though attached to brigades, the new units were divisional troops.

In the Australian medical service reconstruction stopped at the field units and did not include the most important item, namely, the new "clearing hospital," perhaps the most interesting and a vital link in the scheme for the evacuation of sick and wounded. Lines-of-communication and base hospitals were not organised. Instead, the "Reserve of Officers for service in national emergency" was reconstituted to provide a medical and surgical staff, consultative and executive, for the treatment in time of war of the sick and wounded of an Australian military force operating in the Commonwealth. It was subdivided as follows:—

Officers—

(*a*) those already on Reserve of Officers;

[13] The first of these was held in Victoria in 1902, and the medical arrangements were commended by the umpire, Sir Edward Hutton (G.O.C., Commonwealth Military Forces).

[14] The cavalry (or light horse) field ambulance consisted of 6 officers and 118 other ranks organised in two sections: a light horse stretcher-squad consisted of four as against six stretcher-bearers.

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(*b*) duly qualified and registered members of the medical profession willing to be enrolled in the Reserve and graded as follows:—

(1) Consultant staff—honorary rank of major.

(2) Executive hospital staff—honorary rank of captain.

(3) Duty with field force and garrison troops—honorary rank of captain.

Other ranks—

(*a*) students of medicine;

(*b*) chemists and chemists' assistants;

(*c*) members of recognised ambulance societies;

(*d*) special trades.

On the 20th of January, 1909, pharmaceutical officers with honorary rank of lieutenant were added to the A.A.M.C. Reserve.

Until the reconstruction that followed the South African War the prevention of disease in the army was organised on a very simple basis. In the field, sanitary work was carried out by "fatigues." The growing recognition of its importance is reflected in the space allotted to "sanitation" in successive editions of Australian Army Medical Corps "Standing Orders," which laid down the peace organisation. In 1906 the Principal Medical Officer of each military district and, in the camps of training, the senior medical officers of brigades were made responsible for "advising precautionary measures and issuing instructions." In 1909 "command sanitary officers" were appointed to advise the P.M.O's, to conduct classes, and in general to supervise sanitary training. The sanitary work of units was still carried out by fatigues.

Nucleus provided

Thus, in general, the Commonwealth scheme of defence provided small "peace establishments," to serve as a nucleus for rapid expansion on the outbreak of war. Though differing somewhat in the peace organisation and interior economy of her medical service, Australia adopted, with but little alteration, British establishments and service principles, and used the British training and service manuals.

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British pre-war organisation

For non-military readers a brief summary may be given of the organisation of the medical service of a field force in the British Army at this time, and of the principles of service in respect of the two fundamental responsibilities—the prevention of disease and the evacuation and treatment of sick and wounded—as evolved after the South African War, embodied in British (and Australian) military manuals and training orders, and carried out in training. The importance of these principles for the efficiency of a force in the field was stressed in the new *Field Service Regulations*[15] of the British Army.

Under the new system the medical service became a department of the Adjutant-General's Branch, losing the right of direct communication with the General Officer Commanding. With this limitation a medical service in the field was controlled by a "Director of Medical and Sanitary Services" ("D.M.S."), under whom "Assistant-Directors of Medical Services," with deputy-assistant-directors, administered those services in the infantry and cavalry divisions of the army or filled administrative positions on the staff of the Director. The Lines of Communication were commonly put under the control of a Deputy-Director ("D.D.M.S.," grading next to the Director) on the staff of the Inspector-General of Communications; a Deputy-Director was also responsible for the expeditionary base.

The need for some differentiation of the two fundamental responsibilities of the Service was recognised as applying to administration, as well as in execution. One A.D.M.S. (or D.A.D.M.S.) on the personal staff of the "D.M.S. at the seat of war" was to be "an officer having special knowledge of sanitation" while for the division ("the basis of organisation of the mobile units of the army in the field") the D.A.D.M.S. was held responsible. Executive in respect of the prevention of disease began with the regimental medical officer, who was provided with a corporal and four other ranks A.A.M.C., specially for "water duties" and with a combatant personnel of nine as a "sanitary

[15] *See Glossary.*

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detachment." This was the sole sanitary organisation that existed in an infantry or cavalry division or brigade before the Great War. For service behind the field units there were provided sanitary sections (one officer and twenty-five other ranks), specially selected and trained, and also—for less important posts—sanitary squads (one N.C.O. and four privates).

In respect of the collecting and evacuation of wounded, training manuals postulated three zones of activity—(*a*) the collecting zone (the area occupied by field units—infantry or cavalry divisions); (*b*) the evacuating zone (corresponding with the Lines of Communication); (*c*) the distributing zone. The regimental medical officer was again the first link in the chain connecting the front line with the base. He was provided with two orderlies and sixteen stretcher-bearers (combatants), who, when an action commenced, would deposit their arms in the "Maltese cart" (which carried the field medical and surgical panniers, "medical companion," surgical haversack, and water-bottle, which comprised the equipment), and would assume the brassard prescribed by the Geneva Convention. Bearer "squads" carried to the regimental aid-post, which in turn was cleared by the ambulance bearers and waggons to the "dressing station" of the field ambulance. The next link was the clearing hospital. For transportation between the field ambulances and this unit reliance was placed on improvised local vehicles, or on supply-waggons returning empty. The clearing hospital at the head of the Lines of Communication ("advanced base"), with ambulance trains, constituted the "evacuating zone." The function of the clearing hospital (as understood and taught in the Australian service) was—

> to push up within reach of the field ambulances so as to enable these to discharge their patients and follow up their brigades; and upon the thoroughness of the organisation of the clearing hospital the whole system of evacuation of sick and wounded depends. Having relieved the field ambulances of their patients, the next duty of the clearing hospital is to empty itself by passing the patients on to the stationary hospitals by means of ambulance trains, or, if not situated on the railway, by using empty supply and store waggons or any other transport which may be provided.[16]

[16] Quoted from an article by the P.M.O., 1st Military District, in *The Commonwealth Military Journal*, September, 1911. The diagram is taken from the same source.

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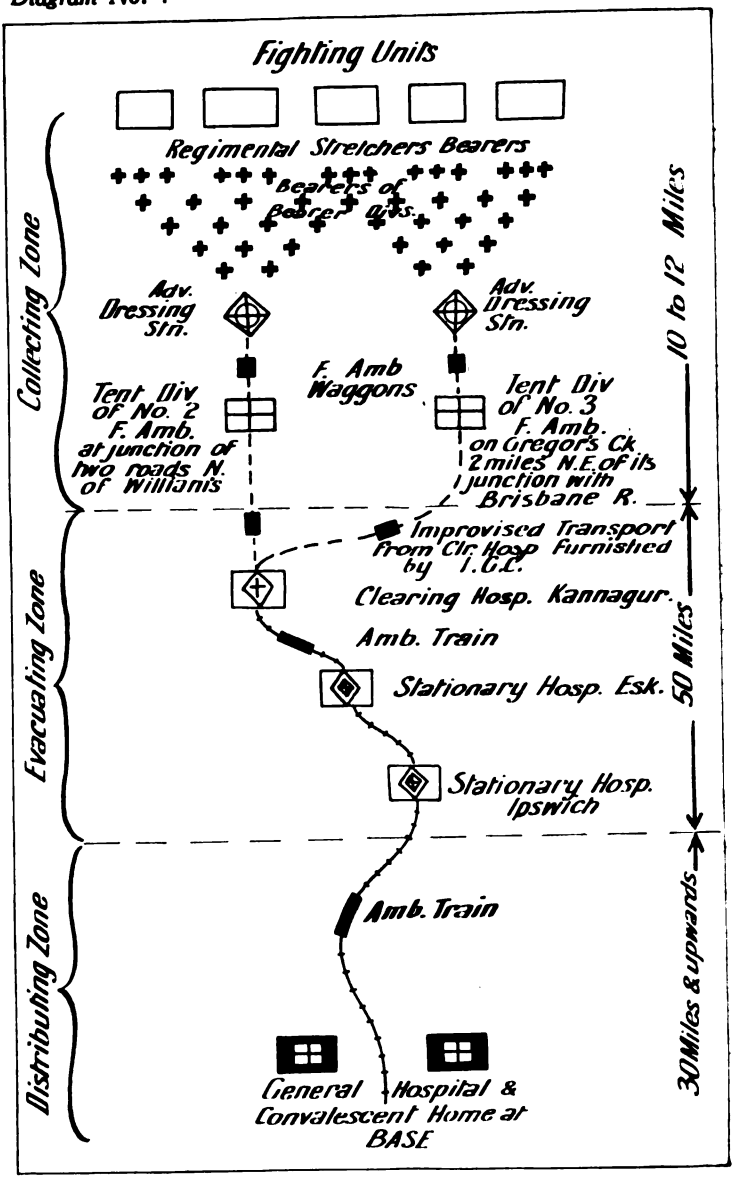
Diagram No. 1


Fighting Units
Regimental Stretchers Bearers
Bearers of Bearer Divs.
Collecting Zone
Adv. Dressing Stn.
Adv. Dressing Stn.
F. Amb Waggons
Tent Div of No. 2 F. Amb. at junction of two roads N. of Williams
Tent Div of No. 3 F. Amb. on Gregor's Ck 2 miles N.E. of its junction with Brisbane R.
10 to 12 Miles
Improvised Transport from Clr. Hosp Furnished by T.C.C.
Clearing Hosp. Kannagur.
Evacuating Zone
Amb. Train
Stationary Hosp. Esk.
50 Miles
Stationary Hosp. Ipswich
Amb. Train
Distributing Zone
30 Miles & upwards
General Hospital & Convalescent Home at BASE

MEDICAL ARRANGEMENTS OF THE "SOUTHERN" FORCE, 3RD NOVEMBER, 1910

Adapted from a diagram by Lieut.-Colonel A. Sutton in The Commonwealth Military Journal, Sept. 1911, illustrating comments on a military staff ride on the upper Brisbane River.

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The ambulance train evacuated to stationary or general hospitals in the distributing zone, which in turn discharged to convalescent dépôts. There was no provision for the latter in the Australian organisation. To quote again from the same article:—

> The civil hospitals of the various States will be utilised as general hospitals, and the medical and surgical staffs of civil hospitals will be requested to give their service. . . . Any deficiency will be made up by officers of the A.A.M.C. reserve. Convalescent Dépôts are not provided in the Field Service Manual A.A.M.C., but we have no reason to believe that the people of Australia will be behind those of other nations in voluntarily providing care, shelter, and sustenance for their sick and wounded soldiers. Without doubt ere long an Australian Red Cross Society will be established, where, as in Great Britain and European countries, lists of charitably disposed persons will be kept.

Supplement by Voluntary Aid

In respect of Voluntary Aid Australia had not yet followed Great Britain (herself hitherto behind other European nations) in organising, on the lines laid down in the Geneva Convention (and after the South African War embodied in the *Field Service Regulations* of the British Army), voluntary activities in supplement to the official medical service. Provision had, it is true, been made in the Commonwealth scheme of defence for the voluntary participation of citizens other than those enlisted in the military force of the Commonwealth.[17] It is there stated that "the civil first-aid societies will be invited to consider a scheme of organizing whereby they may be associated with the A.A.M.C. for the purpose of supplementing this service in time of a national emergency." No immediate steps were, however, taken to give effect to this proposal. The first-aid activities of societies in Australia were at this time directed to civil requirements with little or no reference to war needs. The only body possessed of more than local standing was the empire-wide St. John Ambulance Association and Brigade, of which in every State except Queensland (where a peculiarly efficient local society existed) branches were actively engaged in organising civil first-aid and home nursing. In October, 1913, a branch of the new British Red Cross Society

[17] The work of Voluntary Aid Societies in the war is dealt with on general lines in Chapter *xxiv*.

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was formed in New South Wales. The objects of this body (which was concerned directly with "voluntary aid" in war) were the organised distribution of goods and comforts and the provision of hospitals, etc., ancillary to those raised by the medical service.

It was not till 1914 that any definite steps were taken to put into effect the provisions above referred to for supplementing the official medical service, and even then they did not include any arrangement for the co-operation of purely civilian associations. In connection with the "Territorial" (voluntary) military system of Great Britain provision had been made by the War Office in 1909 for "voluntary aid detachments" of men and women to form a "technical reserve," organised on a uniform and semi-military basis, and liable to be called up in case of war to co-operate in home territory under the direction of the Army Medical Service. This scheme, adapted to meet Australian conditions, was embodied in 1914 in a *Handbook for Voluntary Aid Detachments.*

In 1911 the attendance of all ranks at militia camps of continuous training was 21,803 (A.A.M.C., 768). In this year the Commonwealth instituted a system[18] of universal military training for home defence, whereby all males between the ages of 18 and 26 fit for service underwent each year a certain amount of such training. This event, cardinal in the history of Australian defence, brought little change in the medical service, since the new system was grafted on to, and supplemented, that of the militia. The number of medical units was increased, a regular supply of rank and file being ensured by drafts of trainees at the age of eighteen. As but few medical practitioners were under the age of 26 years the medical profession was looked to for the supply of medical officers to complete the establishments.

"Universal training"—1911

In order (as was laid down in A.A.M.C. Standing Orders) "to facilitate the special training of personnel required for war organisation, which, on mobilisation, will be allotted to their respective sanitary districts, sanitary posts

[18] Based on an Act of 1909 modified in accordance with recommendations of Lord Kitchener on his visit in 1910.

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and brigade units," there were formed A.A.M.C. companies[19] and half-companies, comprising the nucleus for sanitary sections, sanitary squads, and regimental sanitary detachments.

The medical profession in Australia was closely concerned in an important item of the scheme—the arrangements for medical examination of trainees.[20] Provision for this work was made by associating with the full-time combatant area officer (who was responsible for about 1,000 trainees) a part-time "area medical officer," paid at the rate of £60 per annum, medical officers of the militia being given preference over civilians. The duty of the area medical officer was to examine all the boys within his area at 13 years of age and assess their fitness for military service; also to re-assess annually the trainees—as senior cadets, at from 14 to 18 years of age, and, in the citizen force, at from 18 to 26—both those passed and those rejected. Junior cadets (boys from 12 to 14) underwent a more cursory medical inspection. All findings, together with weight, height, and chest measurement, were recorded on statistical cards.[21] The medical profession, on the whole, dealt with the matter on a patriotic rather than a financial basis, backing up the scheme by voluntarily staffing the medical units and somewhat more than earning the £60 salary of area medical officers.

Strength 1914

In 1914 the camps of continuous training were attended by a total of 51,195 members of the citizen forces (militia). A return of strength on the 1st of July, 1914, showed in the permanent force 4 A.A.M.C. officers (the Director-General of Medical Services and three quartermasters of the instructional staff)

[19] One officer and 45 other ranks. It was found difficult to fill these units, trainees objecting to the word "sanitary." To obviate this, for "sanitary" was substituted "A.A.M.C.," and the regimental sanitary detachment called "pioneers"—a term applied in the British Army to skilled tradesmen on the quartermaster's staff.

[20] On 31 Dec., 1911 (six months after commencement of the new senior cadet training), the total registrations in training areas numbered 155,132. Of these 105,133 had been medically examined, and 93.2 per cent passed as fit. Of 33,767 junior cadets examined, 97.8 per cent were certified as fit.

[21] It is unfortunate that opportunity was not taken to build up in each State an exact system, embodied in mobilisation orders, for the medical examination of recruits. A unique opportunity was also lost for a progressive presentation of the physical standards and health tendencies of each generation in various parts of the Commonwealth. Such neglect, it may be noted, was continued in the similar absence of consolidated records of the causes of rejection of recruits during the Great War.

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and 29 other ranks; in the militia and citizen forces, 183 officers and 1,649 other ranks. These constituted, on a peace establishment, 16 field ambulances, 5 light horse field ambulances, 3½ sanitary companies, and 121 regimental medical establishments. On the "unattached list" were 33 A.A.M.C. officers; the Reserve of Officers stood at 231; the Army Nursing Service at 108. The general scheme provided for no formations larger than brigades, and appointments of A.D'sM.S. of divisions were therefore not made. The Principal Medical Officers in each State still administered the Medical Services in the several "military districts."

Deficiencies

No lines-of-communication units existed, nor was there any provision for their formation except in the "reserve list," whose personnel were not allotted. Like the British, medical transport was entirely horse-drawn, civilisation having in this respect left the Service standing. Through the inadequacy of the financial grant the supply of ambulance vehicles barely sufficed for training purposes on a peace footing. Supplies of medical stores also were insufficient for more than training purposes. No advanced or base dépôts of medical stores had been formed.

Victory depends greatly on ability to forestall the enemy. For rapidly setting in motion the ponderous machinery of war—involving in a citizen force a change from peace to war establishment in men, munitions, transport, and equipment—special provision exists in all armies in the form of "mobilisation standing orders," in which the first step usually precedes the actual declaration of war and, as in 1914, may be a factor in bringing it about—from sheer inability to stop.

Merely to bring the Australian formations to war strength would have absorbed every medical officer on the active and reserve lists and still left a shortage; it would have compelled much improvising of transport, equipment, and medical stores. Moreover, had the enemy been close to Australia's own shores, the time element would have worn even a more serious aspect than it did in the prodigious rush (as it appeared) which was necessitated when in August, 1914, she, in common with the other dominions within the British Empire, found herself involved in the greatest war in the history of mankind.

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CHAPTER II

1914: MOBILISATION: THE AUSTRALIAN IMPERIAL FORCE

THE outbreak of war involved the immediate provision of medical service in connection with local defence and for New Guinea, and swift preparation for a main effort overseas. A force was offered by Australia for service wherever desired, under British command. This force included a full establishment of field medical units and, at the special request of the War Office, the line-of-communication and base hospitals appropriate to a division. Certain special measures of a general nature taken at this stage—for example, insistence upon inoculation, and provision for internal control of the force—were vital in the subsequent history of the A.A.M.C.

* * *

On the 4th of August, 1914, Great Britain declared war against Germany. On the previous day Australia had offered for service anywhere under British direction her navy[1] and 20,000 troops. The offer was accepted, and Brigadier-General W. T. Bridges, Inspector-General of the Australian Military Forces, was at once instructed to proceed with the raising of the troops: the organisation of home defence had already been taken in hand by the Military Board. A circular to the commandant of each military district set out the principles that should govern the enlistment of their quota, and stated that "the desire of the Government being that the force shall sail within one month makes available time the governing factor."

Already, on the notice of impending hostilities, the "precautionary" steps for home defence had been taken, and a partial mobilisation of the citizen forces preceded the preparations for the despatch of the overseas contingent. This was carried out by the permanent and citizen force staffs, and by militia personnel called up on the declaration of war.

On August 6th a cable from the Secretary of State for the Colonies suggested that Australia, in conjunction with New Zealand, might take in hand the capture of German possessions in the Pacific—a potential naval base of the enemy. This was agreed to. The Defence Act of Australia

[1] For an account of the work of the Australian naval medical service in the War, see *Vol. II.*

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confines the compulsory service of the citizen army to the Australian mainland; consequently, while strategy would point to such an expedition as an essential measure of defence, political considerations made it necessary that this force, like that for service in Europe, should be raised by voluntary enlistment. Entire responsibility for raising and fitting out the military contingent that formed part of the "Naval and Military Expeditionary Force" to New Guinea was entrusted to the 2nd Military District, and an account of the medical side of its brief service, and of the problems in tropical hygiene presented during the military occupation of the captured territory, is given elsewhere in this volume. The raising of the force intended for Europe—for which the name "Australian Imperial Force" or "A.I.F." was devised—calls for description in some detail. A short account must first be given of the partial mobilisation of the volunteers, militia, and citizen forces of the Commonwealth—a proceeding which, if perhaps of somewhat amateur quality from a military standpoint, was at least marked by commendable celerity.

Coastal Defence

The presence in the Pacific of German cruisers made necessary the garrisoning of strategic points on the coast. With the citizen force and militia troops went sections or details from the field ambulances. Of these detachments the most considerable in point of numbers was that called up in the 1st Military District to supplement the small garrison of Thursday Island, the most distant outpost of the Commonwealth, and only 200 miles from German New Guinea. "A" Section of the 1st (Citizen Force) Field Ambulance, based on towns north of the Tropic of Capricorn, accompanied the 1,250 militia and citizen force trainees[2] that formed the force assembled at Townsville. The equipping of this and of the two other sections mobilised in the 1st Military District absorbed the whole reserve of its medical stores. Drugs were purchased from chemists in Townsville, and an old two-horsed omnibus was fitted up as an ambulance waggon.

The experience of the force was uneventful, and on December 8th, after the battle of Falkland Islands, it was disbanded as being no longer necessary. The medical

[2] Only the 1896 quota of trainees was available for service in 1914.

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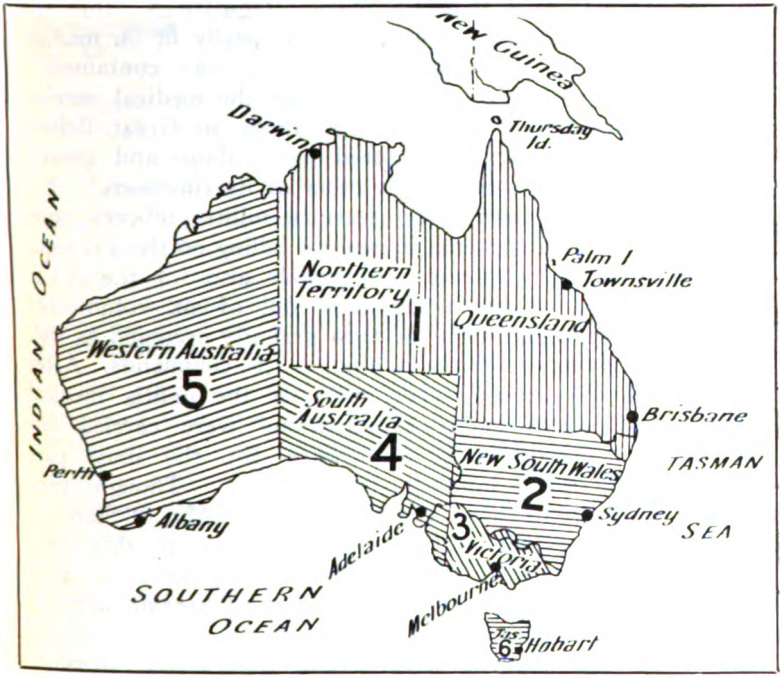
detachment was efficient and its personnel acquainted with the tropical climate. Except for an outbreak of dengue fever (during which some six per cent per day were unfit for duty and eighty per cent were ultimately affected) the standard of health was good. Though the flies were in great numbers, gastro-intestinal infections were conspicuously absent, a result attributed to careful conservancy and the plentiful use of cresylic solutions as fly-deterrent.



Population of States in 1914: New South Wales (including Federal Capital Territory), 1,863,481; Victoria, 1,430,667; Queensland, 676,707; South Australia, 441,690; Western Australia, 323,018; Tasmania, 201,416. The population of the Northern Territory was 3,973. It will be observed that the States and military districts are not quite conterminous.

The citizen force units mobilised elsewhere in Australia were similarly disbanded after short periods of service,[3] medical officers being for the most part absorbed into the

[3] Citizen force training was continued throughout the war, being associated with the training of recruits for the overseas force.

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A.I.F. The machinery of the permanent and citizen forces and that of the militia were employed in raising the first contingent for oversea, for which enlistment began on August 15th.

The first experience of the volunteer for active service, preceding even his "attestation," was his medical examination.

A.I.F.—Examination of Recruits

In his circular General Bridges gave instructions that the qualifications for enlistment in the A.I.F. should be those laid down in Australian Military Regulations for the militia,[4] and that recruits must be "physically fit on medical examination." In the last five words was contained a problem through which during the war the medical service, together with the profession as a whole, in Great Britain as well as in Australia, suffered more abuse and greater discredit than in respect of any other of its functions.[5] For the medical examination of recruits militia officers were called up, the arrangements in general falling on the Principal Medical Officers, who were responsible also for the A.I.F. training camps. Five of the latter out of six volunteered for the A.I.F., and became at once urgently occupied as well in the special responsibilities of their A.I.F. commands. After the middle of August—when most of the militia medical officers went into camp—examinations were carried out by civilian practitioners, who were for the most part unacquainted with military requirements. Though very precise instructions were contained in A.A.M.C. "Standing Orders," the system of examination was at this time haphazard and crude. On August 20th directions were issued by Surgeon-General Williams that all recruits arriving in camp should be re-examined by "the medical officers detailed to go with the force," and that special attention should be given to vaccination and the condition of the teeth. The procedure in connection with the latter was governed by "Standing Orders" as follows:—

> The acceptance or rejection of a recruit on account of loss of teeth will depend on the consideration of the relative position of the sound teeth and the physical condition of the recruit; the loss of many teeth in a man of indifferent constitution would point to rejection, whilst a robust recruit who had lost an equal number might be accepted.

[4] The standards of age, minimum height, and minimum chest measurement for the A.I.F. were 18 to 35 years, 5 ft. 6 in., and 34 inches respectively. *See also p. 525.*

[5] *See British Medical History of the War, Vol. I (General), page 128.*

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This left room for inexact methods, and interpretation of the optional clauses varied considerably. The dental profession was not associated with the examination. The number of troops offering themselves at this time allowed free scope for physical selection, and the general standard of fitness was high.

Medical Staff of A.I.F.

For the composition of the force the British Government had suggested two brigades of infantry, one of light horse, and one of the field artillery, but on the advice of General Bridges it was decided by the Government that, instead, the first contingent should consist of a complete division of infantry (the basic military formation) with one brigade of light horse. The policy embodied in this decision was continued by making each military district responsible for raising organised units or parts of units. The reason was set out by General Bridges:—

> Each unit will represent a State and distinct locality, officers and men thus bringing with them the cohesion, comradeship, and local association which are such valuable elements in promoting the highest standards of discipline in the field and of gallantry before the enemy.

The medical establishment required for the A.I.F. comprised administrative staff, field units, and regimental establishments. In connection with the first an interesting situation arose. The A.I.F., though not organised as an expedition, included other units besides the division, and General Bridges was appointed to command the "Australian Imperial Force" as well as the Australian Division. A logical consequence was pointed out by the Director-General of Medical Services in the following letter, dated August 14th, to the General Officer Commanding the A.I.F.:—

Appointment of D.M.S.

> As the above force is to consist of a Head-Quarters staff, one Infantry Division, and one Light Horse Brigade, it would be in accordance with Imperial Regulations for Medical Services to provide a Director of Medical Services on the Head-Quarters staff.
>
> I therefore request that I may be appointed. In the South African War I filled a similar position on the staff of Sir Ian Hamilton and later to Sir Archibald Hunter . . .
>
> The general functions of a Director of Medical Services with troops abroad are to act as adviser to the General Officer Commanding, and exercise supervision over all matters attendant on care of sick and wounded, provision of medical equipment, and other

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duties which do not come under the Assistant Director of Medical Services of a Division, who would be fully occupied with his own proper duties.

I would be prepared to return at once on receipt of a cable should my services be required by the Commonwealth.

Without egotism I can safely say that my services would be of great value to the Australian Imperial Force.

This was approved by General Bridges, and the appointment dated from August 15th. Its special objects were to provide expert technical advice to the A.I.F. command, and to maintain control of the medical service overseas. For these important duties Colonel Williams (who was Australia's only regular medical officer) was by this time imperfectly fitted. He was in indifferent health, and was fifty-eight years of age, and his outlook had become self-contained, and restricted by his immersion in the past. He retained the rank of colonel (honorary surgeon-general), and was given as staff a staff-sergeant (secretary and chief clerk) and a private (clerk). To carry on his duties in Australia, Lieutenant-Colonel R. H. J. Fetherston, a Melbourne specialist and a senior officer in the militia, was appointed acting D.G.M.S., part time, with the rank of colonel, and at once took over the raising of the medical service for the A.I.F. To the headquarters of the division, on August 19th on the personal nomination of General Bridges, Colonel C. S. Ryan, Principal Medical Officer of the 3rd Military District, was appointed Assistant-Director of Medical Services and Lieutenant-Colonel G. A. Marshall, from the 2nd Military District, was appointed a Deputy-Assistant-Director. Colonel Ryan was sixty years of age and had seen service in the Russo-Turkish War of 1876.

Raising of Medical Units

For raising the three infantry and one light horse field ambulances and twenty-three regimental establishments which were required, the P.M.O's in each State were made responsible by a circular from General Williams (as Director-General). The policy adopted is indicated by that sent to the P.M.O., 2nd Military District, the others being couched in the same terms—

Submit through Commandant forthwith names of commanding and other officers for one field ambulance war establishment from your Military District who may volunteer for service with the Australian Imperial Force; also for "A" Section one Light Horse Field Ambulance.

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One field ambulance was raised for each brigade, and bore the same number. Thus the 1st Field Ambulance was raised, with the 1st Infantry Brigade, in New South Wales; the 2nd in Victoria; the 3rd, like the corresponding brigade, was a composite unit, the personnel being drawn from four States[6] by sections. No difficulty was experienced by the P.M.O's in providing personnel for their quota of units. In this "first contingent" only eight medical officers were without military experience, their inclusion being due to the policy of territorial enlistment. An important provision, regarded by Surgeon-General Williams as "essential to the prompt training and efficiency of these units," was the attachment to each of a member of the Australian Instructional Staff (volunteering) as quartermaster with honorary commissioned rank or as regimental sergeant-major. These officers played an important part in the efficiency of the medical service with the A.I.F. The rank and file included a considerable proportion of men without previous military training, but, with the large numbers of recruits presenting themselves, a high standard was ensured, and the varied requirements of these elaborate units were met by selecting men from various professions, trades, and other occupations. Promotion to non-commissioned rank was made provisional on three months' probation.[7]

Equipment and Horse-transport

Medical equipment was in accordance with British "Standing Orders for the equipment of an Expeditionary Force," most of it being hastily improvised by local firms—in particular the "first field dressing," supplied through "ordnance" to every officer and man and carried as part of his equipment in a special pocket of his tunic. Much of the equipment for field ambulances had to be ordered from England. The difficulty lay chiefly in the specially-constructed wicker "panniers." The full equipment of stretchers was available (seventy-six per field ambulance, *i.e.*, four per waggon and one per stretcher squad of six).

[6] Queensland, South Australia, and Western Australia with Tasmania.

[7] In raising the regimental medical establishments much confusion was engendered by the use in the citizen force of the term "pioneers" (*see p. 15*) for the "regimental sanitary detachment." The uncertain rôle of the new clearing station, and South African war experience, led to a belief that field ambulances would be important centres for "war surgery." This is reflected in the postings.

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The transport of an infantry field ambulance at this time consisted of ten heavy horse-drawn ambulance waggons, each for four lying and two sitting cases, and six "General Service" waggons. In a light horse field ambulance the numbers were eight light ambulance and three "G.S." waggons. In accordance with British usage, ambulance waggons were horse-drawn,[8] new vehicles of Australian type being hastily constructed for the A.I.F. To bring the baggage waggons into line with the British, the light Australian baggage carts were discarded. Transport drivers, as in the Australian Military Forces, were enlisted as A.A.M.C., instead of being—as in the British Army—army service corps personnel "attached." The establishment was 52 drivers as against 32 attached to British field ambulances. They were trained in first aid and stretcher exercises. Tentage for 150 cases was provided for a field ambulance, but none for their personnel.

Both officers and other ranks at first wore as uniform the A.I.F. field-service jacket of a special khaki woollen cloth. To officers were issued Webley revolvers (which later were withdrawn); stretcher-bearers carried a small special side-pouch on a leather belt for first-aid kit.

The first Camps

The troops were concentrated at central camps in each military district, identical for the most part with those used as camps of continuous training. The names of these, which for those who marched away were fraught with the first vivid memories of the great decision, became familiar and, in a sense, even historic. Taken in order, by military districts, they were —Enoggera, Liverpool, Broadmeadows, Mitcham, Blackboy Hill, Claremont. All were situated within twenty miles of the capital cities. The troops were under canvas, but during this early period little was done to anticipate special camp requirements, which were subsequently to

[8] The decision by the General Staff and finance department of the War Office against the provision of motor-ambulance convoys behind the divisions (for fear of congesting roads) and of motor vehicles to the field ambulances (on the ground of expense), bore bitter fruit in the experience of the first troops of the B.E.F., the forward medical units of which—the essential and vital units one may say—"were rendered semi-inactive" and "hopelessly immobile when engaged with wounded." *The Great War and the R.A.M.C.*, by Lt.-Colonel F. S. Brereton, *p. 14.*

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cause urgent and perplexing problems. Indeed, the claims to which the Commonwealth was committed by this new military experience became evident only by degrees, and the period during which the camps would be occupied was presumed to be brief.[9]

Camp kitchens were not provided. "Messing" was in tents. The problem of "sanitation" presented the difficulties which might be expected with large bodies of men accustomed to the privacy of life in town and in the bush. The initiation of the citizen recruit into the discipline of military hygiene, which begins when he enters on camp life, carries with it a very pronounced change of mental attitude as well as of habits. It forms, indeed, the more salutary element in the profound readjustment by which the independent and peaceful citizen is transformed into the disciplined slayer of men —a transformation of which the unsalutary elements are expected to be sloughed automatically with the signing of peace, while habits convenient to social life are retained.

Beginnings—Sanitation

Field ambulances or sections were attached to each camp, and received the sick from the battalion sick parades. As always in the medical service, their own training coincided with the performance of responsible duties. Arrangements for dealing with such cases of sickness as were unsuited for treatment in the field were made almost entirely through civil agencies,[10] St. John Ambulance Brigade and similar societies providing for transport, and the large civil hospitals for treatment. Infectious disease was dealt with through the civil health departments. At this time all who were found to be suffering with venereal disease were discharged from the Australian Imperial Force. Though health in general was good, the small cloud on the horizon showed itself in the comparative prevalence of measles, influenza, and venereal disease, and in the occurrence of cases of cerebro-spinal fever.

Sickness

[9] When the first force was raised, it was confidently expected that the war would last no longer than six months, and this assumption produced two results—a hasty rush by enterprising spirits, and a delay on the part of others who would enlist only from a strong conviction of duty.

[10] In the 2nd Military District there existed a very efficient garrison hospital, which was made the base military hospital for the A.I.F. in this district.

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No system as yet existed in the army for dental treatment, but responsibility for this default did not lie with the dental profession or the medical service of Australia. Since the effort made in 1906 by Surgeon-General Williams for a dental service, both professions had continually urged its importance. On the outbreak of war many practitioners volunteered for service as dentists, but their enlistment was refused, as not being provided for in British "war establishments." General Williams secured for each military district the appointment of a dental surgeon, who drew pay and field allowances, but whose scope of duty provided only for "advice" to senior medical officers in camp—"no liability to be incurred in regard to dental work." The dental profession itself stepped into the gap, and organised in every State clinics to treat the troops in camp on a purely gratuitous and patriotic basis, the special object being to make the men "dentally fit" on embarkation. In the larger States dental hospitals were placed at the disposal of the Minister for Defence. Further, in many instances dentists who had enlisted in the ranks as combatants were permitted by commanding officers to treat the troops, the equipment being provided by themselves or through gifts (in some instances from regimental funds).

Teeth

At the outset of the history of the A.I.F. there was made by the military authorities a decision which is of importance as indicating the high standard of general education and of essential discipline in the population from which that force was recruited. At an early date vaccination against small-pox and inoculation against typhoid were made a condition of service with the A.I.F. Through the proximity of Australia to endemic centres of virulent small-pox in the East, and through the presence of that disease in epidemic though mild form[11] in 1914, the community in general was well acquainted with the arguments for and against vaccination. On the part of the medical profession failure to recommend such protection would have seemed little short of treachery. By Defence regulations vaccination was compulsory for permanent troops going abroad. On the recommendation of

Vaccination and inoculation

[11] Having the features of alastrim.

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the D.M.S., A.I.F., backed by the G.O.C., the Minister for Defence agreed that evidence of successful vaccination should be a *sine qua non* of enlistment—"success" being taken as sufficiently covered by vaccination "at any time of life." This concession subsequently caused great inconvenience and the loss of several lives.

On August 10th the Director-General for Public Health for New South Wales advised the Government that his department was prepared to supply all anti-typhoid vaccine required; on the 11th the Professor of Pathology at the University of Sydney urged on the Department of Defence the advisability of anti-typhoid inoculation. The procedure was approved for the Australian Naval and Military Expeditionary Force,[12] and subsequently for the Australian Imperial Force.[13] By order of General Bridges, on September 7th action of the kind was postponed till the men were aboard ship, this course being taken in consequence of protests by brigadiers against interference with training. In some districts, however, it had been almost completed.

Base and L. of C. Units—Staff

Coincidently with (but in entire independence of) the raising, equipping, and preliminary training of the field force and preparations for its transport overseas, the acting D.G.M.S. was engaged in raising a number of units of a kind quite novel to the Australian service. The Australian Government had not offered, and, rightly or wrongly, did not propose to provide, medical care from the front to the base; provision behind the front was left to the Mother Country. But on the decision of the Australian Government to send a complete division instead of detached units, a suggestion was received from the War Office that certain line-of-communication units should be provided, of which by far the most important was a full establishment of "base" and line-of-communication medical units for an infantry division, as laid down in the *Field Service Manual;* namely, a clearing hospital, two stationary

[12] The force for German New Guinea (*see pp. 17-18*).

[13] Vaccine was at first supplied from the laboratory of the Department of Public Health in N.S.W., prepared from nine strains of bacilli, Australian and European, standardised to contain 1,000 million per cubic centimetre, two doses to be given, the first of 250 millions, the second, at seven days, of 500 millions.

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hospitals (200 beds), and two general hospitals (520 beds).[14] The full establishment for these, with certain additional personnel, absorbed 66 medical officers, 186 female nursing staff, and 556 other ranks A.A.M.C.

To meet the sudden demand on the medical profession for the line-of-communication units,[15] the acting D.G.M.S. sent to all State commandants an appeal in which, after detailing units to be raised, he continued: "It is hoped that medical officers of the A.A.M.C. Reserve and leaders of the medical profession—both physicians and surgeons—and juniors, will volunteer for service." The response was fully adequate, each State being represented by men eminent in the profession. The selection of officers to command was made strictly on the principle of Australian Military Force seniority.[16]

Nurses

The nursing service for the A.I.F. was recruited from the Australian Army Nursing Service and from the civil nursing profession. In Australia there was a high standard of training, controlled by two voluntary bodies—the Australian Trained Nurses Association and the Royal Victorian Trained Nursing Association: in one State (Queensland) the control was by State registration. The term of training was, in general, four years. The nursing staff for the two general hospitals (which by establishment were alone entitled to such) was made double, ostensibly for lack of trained male orderlies, but in reality because it was felt that their services would be required. A number were seconded for duty on board transports.[17]

[14] General Williams, as Director-General of Medical Services, had recommended the raising of a sanitary section, an advanced dépôt of medical stores, and a convalescent dépôt. This, however, was refused on the ground that they were line-of-communication units, while the policy provided only for a field force: and they were not asked for by Great Britain. In the British Army "divisional" sanitary sections were formed early in 1915. It should be noted that the provision of Australian line-of-communication medical units could not ensure that they must serve the A.I.F.

[15] The general hospitals of an expeditionary base are line-of-communication units in respect of the home base.

[16] An A.I.F. seniority list of members of the medical and nursing professions was instituted at an early date.

[17] Orders for the Australian Imperial Force laid down the conditions of service with the A.I.F. as follows: "Members of the Australian Army Nursing Service and nurses appointed to the A.I.F. will receive all courtesies extended to officers and will have the following rank and precedence—Principal Matron, Matron, Sister, Staff Nurse. Staff Nurses will be known by the title of Sister, irrespective of rank." No "matron in chief" was appointed for the Nursing Service with the A.I.F.

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These base and line-of-communication units had not previously been included in the Commonwealth military organisation, and knowledge of their practical working was based on South African War and civil experience together with such accounts of their purpose as were given in training and service manuals. If in some respects a disadvantage, this uncertainty gave opportunity for anticipating official recognition of modern developments in medicine and surgery, and for including specialist departments, the necessity of which was realised by the civil profession from the outset. In the general hospitals, for example, there were provided instruments, appliances, and equipment not contained in the official equipment-table (of which no copy existed in Australia). Bacteriological, pathological, X-ray, and ophthalmic departments were organised, and specialists were enlisted whose inclusion above establishment was manœuvred by the acting D.G.M.S. attaching them as "reserve officers." The "establishment" of A.I.F. units was, at this time, restricted by the Australian Government almost timidly within the lines laid down in British "war establishments."

Special Equipment

In the absence of official panniers, special instrument-cases were designed for the general hospitals. A feature of the equipment was a portable X-ray outfit, which, designed by the radiologist and presented to the clearing hospital, anticipated in essential features the type used by them during the later stages of the war. In addition, regardless of mobilisation tables, many motor cars, old and new, were transformed into ambulance waggons and presented to these units, which, though not officially entitled to any transport, were permitted to retain them. No provision, however, was made for repairs or for supply of petrol.

Besides these vehicles, most of the extra—and not a little of the official—equipment was provided by gifts from citizens. These, in money or in kind, at the outbreak of war poured into the medical department in each State, at first for the most part given personally or subscribed by various concerted but independent efforts. As to the place and scope of such efforts, those who offered either donations or

Voluntary Aid

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service looked for counsel to the Principal Medical Officers, but in the absence of an established policy advice was uncertain and often conflicting. At the outbreak of the war Australia was almost devoid of machinery for co-ordinating the voluntary efforts of citizens in supplement to the work of the medical service: the Defence scheme for "voluntary aid detachments" had not been constituted, and no provision had been made for assimilating gifts, whether in money or in kind.

Within a few days of the outbreak of war the St. John Ambulance Association officially offered its services, but recognition as a voluntary body in terms of the Geneva Convention was refused: on what grounds, does not appear. In New South Wales the recently-formed branch of the British Red Cross Society at once became active. Early in August an "Australian Branch" was created, with divisions in each State, which before long absorbed all other such voluntary activities. Goods of all—and often of somewhat bizarre[18]—descriptions, as well as sums of money, were given to commanding officers, or sent to the High Commissioner for the force proceeding oversea, or presented to the parent society. Having at this time no executive staff for distribution and no means of transportation, the activities of the society in respect of the A.I.F. were carried on entirely through the medical service. The D.M.S., A.I.F., became recognised as its official representative. A "Red Cross grant of £10,000" was lodged with the High Commissioner, to be at his disposal on reaching England.

Raising of Second Contingent

At the same time when the suggestion from the War Office concerning the raising of these units was adopted, the Australian Government decided to offer additional fighting troops comprising another brigade (the 4th) of infantry and two brigades of light horse, with corresponding medical establishments. This step was taken in order to utilise the overplus of volunteers for the A.I.F. The offer was accepted and the "second contingent" was thus constituted. Its formation, however, made little impression on the stream

[18] A pedigreed racehorse was presented as a "charger" to the officer commanding a field ambulance.

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5. Broadmeadows Camp, Victoria, in 1914

Military uniform had not yet been issued to all recruits.

Taken by "Darge," Melbourne.

6. The 2nd Field Ambulance training at Broadmeadows prior to the departure of the First Convoy

Taken by "Darge," Melbourne.

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8. Surgeon-General R. H. J. Fetherston, A.A.M.C.

Acting Director-General of Medical Services, Australian Military Forces, from 16th August, 1914, to 31st December, 1918.

Photo. by "Kricheldorff," Melbourne.

7. Surgeon-General W. D. C. Williams, A.A.M.C.

Director-General of Medical Services, Australian Military Forces, 1902-1916, and Director of Medical Services, Australian Imperial Force, 1914-1915.

Photo. by Vandyk, London.

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of recruits, which now filled all the camps to overflowing. The medical units raised for these formations were recruited, assembled, and trained with greater deliberation than those of the "first contingent" and commenced their service with somewhat greater maturity and assurance.

By the middle of September the first contingent of the Australian expeditionary force had been recruited, organised as units and formations under definite command, equipped, and partly trained. Some progress had also been made in the development of a system of internal administration necessitated by the fact that the force, though destined for service in another hemisphere and under other command, was organised with a view to its being within certain limits autonomous and self-contained.[19] These limits were defined by an Order-in-Council, based on a memorandum drawn up by the chief of staff, Lieutenant-Colonel C. B. B. White, which laid down the "powers of the General Officer Commanding the A.I.F.":—

Control of A.I.F.

The "Magna Charta"

(*a*) The power within authorised establishment to change, vary, or group units in such manner as he considers expedient from time to time;

(*b*) the power to transfer officers and men when necessary from one corps or unit to another and to detail them for any duty in any place which he considers expedient from time to time;

(*c*) the power to appoint and promote subject to confirmation officers who, in his opinion, are suitable and qualified to fill vacancies in the authorised establishment;

(*d*) the power to remove officers and men who are unfit by reason of wounds, sickness, or other causes, and to arrange with the High Commissioner in London for their return to Australia;

(*e*) the power to detail to units the personnel of first and other reinforcements in order to make good wastage due to any cause; and to delegate such power if necessary; and

(*f*) the power to employ, discharge, attach, or remove civilian personnel required from to time.

This important pronouncement became the "Magna Charta" of administrative freedom for the force. Thereafter the

[19] The Australian Military Forces were, in peace, subject to the Australian *Defence Act* and regulations. On the outbreak of war however they became, both within and without the Commonwealth, subject to the provisions of the British *Army Act* and of the King's *Regulations* made under that Act except to the extent that those provisions were not inconsistent with or were modified by the *Defence Act* and regulations thereunder, in which case the Australian provisions prevailed: e.g. the number of offences for which the death penalty could be inflicted under the *Army Act* was largely reduced by the *Defence Act*.

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organisation and method of working of the A.I.F., so far as they were special to the expedition, were embodied in A.I.F. standing orders, establishments, equipment and store tables, and so forth. The British *Field Service Manual, 1914, Army Medical Service* (*Expeditionary Force*) was reprinted for the A.I.F. with certain modifications.

The first "Australian Imperial Force Order" was issued by General Bridges on 19th August, 1914. A subsequent order laid down the duties of his Director of Medical Services:—

> The Director of Medical Services, as an officer of the Australian Imperial Force, is responsible to the General Officer Commanding for—
>
> **Control of A.A.M.C.** Advice regarding medical organisation of Australian Imperial Force. Promotions, appointments, and allotment for duty of medical officers of Australian Imperial Force. Allotment of medical reinforcements. Disposal of medical stores and locality of medical dépôts; administrative arrangements in connection therewith. The functions laid down in Section 83 (3), Field Service Regulations, Part II, page 112, as far as applicable to the force as a whole. The D.M.S. is responsible for effecting and for acquainting other branches of the staff with the G.O.C's decisions and orders on the above subjects.

The status and duties of the medical headquarters staff of the 1st Division were also laid down by General Bridges. In connection with these an important departure from Army procedure was made, namely that, in respect of technical questions regarding the disposal of sick and wounded, prevention of disease, and provision of medical equipment, "when more convenient, the A.D.M.S. may communicate direct with the General Officer Commanding, informing the A.A. & Q.M.G.[20] of any decision given."

No machinery existed in Australia for maintaining the records of an overseas expedition. General Bridges therefore arranged for the establishment at Defence Headquarters, Melbourne, of a special records-department for the A.I.F., which took the form of an "Expeditionary Force Branch" of the Defence Department's "Central Registry" and dealt with the correspondence of the A.I.F. while in Australia. On the departure of the first force this became the "Base

Records Branch

[20] Assistant Adjutant and Quartermaster-General. *See Appendix No. 1.*

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Records Office," holding the home copy of the "attestation paper" and medical board papers ("Army Form B.179") of men discharged in Australia. Here also all questions connected with A.I.F. personnel were dealt with, and here, ultimately, were deposited the whole personal records of the force.

A suggestion by the Chief of the General Staff at the Defence Department that a special dépôt for the equipping and maintenance of the Australian troops abroad should be established in England was opposed by General Bridges on the ground that it would tend to interfere with the "welding to the Imperial Force." He submitted, however, to the Minister proposals for a co-ordinating and records office in England, associated with the Department of the High Commissioner for Australia. No special provision was made for the medical requirements of the force overseas, it being presumed by General Bridges that "all arrangements for treatment of sick on the Lines of Communication and Bases, and for invaliding, will be made by the War Office, as part of its common organisation."

The force was to have sailed for Europe towards the end of September, but departure was postponed because of the presence of German warships in the Pacific. The delay gave an opportunity to press on with training. It permitted also, as a last-moment appointment, the attachment to the staff of the D.M.S. of the officer in medical charge of the troops in New Guinea, Lieutenant-Colonel N. R. Howse, V.C., who, when the object of that expedition was achieved, had obtained permission to return to join the A.I.F. On the recommendation of Surgeon-General Williams, he was attached to headquarters as a "supernumerary medical officer," and detailed to assist the D.M.S. for the voyage, acting as his staff officer.

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CHAPTER III

THE FIRST CONVOY

In arrangements for the long oversea transport of the first force, there were set up certain new standards, and, though sickness occurred and followed the expected lines, these provisions were justified by the results.

* * *

The medical problems associated with the transportation of 20,758 troops with 7,479 horses in one convoy through the tropics, to reach England in the middle of winter, were in themselves sufficiently great, and were not lessened by the fact that the vessels available were of the most varied character, some, such as the *Orvieto* and the *Omrah,* being fine passenger vessels, others only cargo boats. But there was no lack of precedent to guide the preparations. From the days of our Saxon forefathers there has been hardly a generation in which England has not been occupied with the sea-transport of troops. Before the war "some 50,000 men crossed the sea in peace relief every year," chiefly to India, and the sum of experience was crystallised in very precise Admiralty regulations. These formed the working basis for the transformation of twenty-eight miscellaneous vessels into the vehicle for one of the greatest single operations in sea-transport hitherto undertaken.

The "First Convoy" was timed to sail for Europe on September 12th. Responsibility for the selection of transports and decision on matters of accommodation and fitting lay with a "Transport Committee," which was under the presidency of the Third Naval Member and included a military representative of the Department of Defence. From the beginning the medical service met with cordial co-operation from the naval authorities. "The technical skill as an expert" of the D.G.M.S. was utilised by the committee, and this officer took a very decided stand in connection with all arrangements that had a bearing on medical responsibilities.

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British Admiralty transport regulations were based on a voyage of from three to four weeks: the Australian committee was faced with the problem of eight weeks on board under adverse climatic conditions. The medical service was directly interested in the provision to be made for treatment on the voyage, and was also concerned—since such matters affected the preservation of health—with sleeping accommodation and ventilation, deck space, exercise, sleeping, washing and latrines, cooking and messing. Success in any enterprise is attained only by the application of lessons from the past. The Australian medical service, and in particular the Director-General, had taken very seriously to heart a lesson from experience in the South African War, when, on the returning troopship *Drayton Grange,* there had occurred seventeen deaths and many cases of serious illness, the finding of the court of inquiry being that overcrowding and defective sleeping and hospital arrangements were the chief factors in the calamity, although technically the Board of Trade regulations had been complied with.[1]

New "Space Standard"

Admiralty regulations for the fitting up of "troop-transports" and "freight ships" were framed on minimum rather than average health requirements; moreover, no allowance was made for peculiarities of construction that would reduce the space actually available. From the first a higher standard was insisted upon by the Australian Government, and a new principle was introduced in determining accommodation. Under Admiralty regulations the "space required" was "governed by the number of mess tables

[1] Causes of death and sickness in the *Drayton Grange*:—

	Deaths.	Treated in Hospital.
Measles	6	154
Influenza	—	39
"Chest affections"	7	23
Tonsillitis	—	4
Cerebro-spinal meningitis	1	—
Dysentery	2	4
Enteric	—	1
Blood-poisoning	1	—
	17	225

Out-patients—2,000, "to a large extent inflammatory conditions of the respiratory organs."

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which can be fitted," and the number of troops carried thus depended not on sleeping but on messing space, which, as a rule, was some twenty per cent above that for hammocks. The extent of deck space available was not being considered. While it was impossible to make hard and fast rules for the precise apportioning of troops to space, the principle was established of estimating the available accommodation by sleeping, and not by messing, accommodation.

No specific percentage of hospital beds was provided in Admiralty regulations, which stated only that "it (the hospital) is to be fitted up in the most suitable part of the vessel and to be specially well ventilated." For the voyage of the convoy a standard of five per cent was aimed at, with a special "infectious" hospital on each vessel. On every transport a large high-pressure steam disinfector was installed.

Medical Personnel and Nurses

As regards personnel, it was arranged that on each of the larger transports there should be at least two medical officers. When necessary, field ambulance and regimental medical officers were associated. Hospital orderlies and sanitary personnel were drawn from ambulance or regimental medical personnel. The Director-General further obtained the permission of the Minister for Defence for nursing sisters of the A.A.N.S. to accompany the force: "on arrival in England, if not otherwise required, they could be handed over to the Imperial authorities for general duty." The Principal Matron of No. 2 A.G.H. was placed in charge. The reason for this arrangement was that, whereas for British troop-transports there were always available fully trained medical orderlies, the medical personnel, ambulance and regimental, of the A.I.F. were but beginning their training, of which the voyage would form part.

From August 16th the acting D.G.M.S. became responsible for the medical arrangements for the voyage. In each military district the Principal Medical Officer was instructed to appoint a "Medical Officer for transports" who should supervise all the medical arrangements; but the P.M.O. was himself "held personally responsible that all instructions are definitely carried out." A "Chief Medical Officer in charge

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of Transports," stationed at Sydney (where most of the "troop-transports" were fitted out), performed the greater part of the executive work.

Drugs, etc.

Admiralty regulations set out a scale of medical equipment, medical comforts, drugs, and disinfectants to be provided on each troopship—on the basis of so much for each 100 troops—but for a voyage of only three to four weeks. For the eight weeks' voyage to Europe, in supplement of this supply, there was printed a special "list of surgical and medical equipment to be placed on each transport A.I.F." This was to be done under the general supervision of the Chief Medical Transport Officer, whose instructions enjoined that the provision of "drugs, surgical appliances, medical comforts, etc.," should be sufficient to meet "every possible medical and surgical emergency" throughout the long voyage: "there must be no shortage in any item."[2] Red Cross "goods equivalent (*sic*) to six per cent of the troops on board" were placed in each transport in charge of the "S.M.O." (Senior Medical Officer), who was instructed to "hand the remainder on arrival to the Red Cross authorities." All field equipment and stores were put on board sealed, and were not to be used until the force was "in the field on active service."

In the flagship *Orvieto,* in addition to the Director of Medical Services and his staff officer, went the divisional medical administrative staff—the Assistant and Deputy-Assistant Directors. This vessel was equipped to serve as the operating centre for the fleet.

Departure

Departure of the convoy was delayed by the presence of enemy craft within possible striking distance. Between October 24th and 26th troopships from the eastern States concentrated at Albany, Western Australia, where, on the 28th, they were joined by the New Zealand contingent.[3] At this port no less than 37

[2] For this hurried and experimental attempt to standardise medical stores for the long voyage, merit can, perhaps, be claimed on grounds of adequacy, but hardly (it must be acknowledged) on any other score. It was a "blunderbuss" charge, and, while the surplus on arrival served to stock in some lines two depôts of medical stores, drugs had to be obtained at Colombo; on the other hand, large quantities were ultimately sent back to Australia, among them ergot in bulk and a great amount of opium. At this period of the war the special knowledge and experience of the pharmaceutical profession was very inadequately utilised.

[3] The New Zealand contingent was conveyed in ten additional troopships; the total strength was 8,427 troops; 3,815 horses were also on board.

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men were put ashore as "medically unfit for active service." The cases comprised 5 phthisis, 3 middle-ear disease, 2 mental, 2 epilepsy; the remainder suffered from hernia, varicose veins, defective eyesight, fistula, Bright's disease, and chronic rheumatism, with a few acute casualties. No special precautions had been taken to ensure that incubating cases of infectious disease were excluded from among the troops embarking,[4] and on several vessels outbreaks of measles had commenced.

On November 1st the fleet sailed from Albany under escort. Served by fortune and favourable weather, it reached Colombo on the 15th. On November 9th the sinking of the *Emden* by the escorting cruiser *Sydney* provided not only an auspicious omen, but also opportunity for a few medical officers to gain experience of war wounds, some of the less severely wounded having been placed on transports at Colombo.[5]

While there is here no need for a detailed account of the voyage, the fact that it was the first collective voyage in the greatest effort of sea transportation of troops to a distant seat of war that the world has seen justifies some remark upon it. To the medical service the long sea voyage brought important responsibilities in the prevention of disease and the treatment of the sick, and therein gave them opportunities for training in their individual duties the rank and file of their units—the raw material for the medical service of the A.I.F.

Disease prevention

In respect of the prevention of disease, the water-supply —as is usual on board ship—was safe and, on the whole, adequate: an allowance of from two to four gallons per man was usual. Its distribution, and the supervision of bathing, supplied an opportunity for training the "water duty men." Food was provided on a liberal scale. Admiralty regulations allowed twelve ounces of meat: it is in keeping with the special consideration given to the Australian soldier throughout the war that this amount was increased to twenty ounces.

[4] A case of measles in full exanthem was found in the *Orvieto* just before departure.

[5] For an account of the medical circumstances of this episode, *see Vol. II*—the Medical Service with the Australian Squadron in the war.

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Latrine accommodation was below the five per cent prescribed by the D.M.S., A.I.F., and, as throughout the war, was a most difficult—in many of the troopships an almost insoluble —problem. On this first voyage sanitary discipline also was defective; the "sanitary" personnel learned something of the thorny difficulties that beset their onerous duties. But the ordinary intestinal infections are not a characteristic problem of the sea-transport of troops, and, except for minor cases of diarrhœa, these were absent. Outbreaks of "ptomaine poisoning," however, occurred in two vessels, in one of which, while in the Suez Canal, some 600 men were affected.

Health on voyage

The health history of the voyage is one of considerable interest: the events of this first voyage repeated the past, and mirrored the future, experience of Australian troop-transportation. Disease in armies follows broad lines of aetiology, and almost invariably outbreaks will occur when conditions favour contagion. The association of large bodies of men in close contact is the special feature of troopship life. Considerable outbreaks of measles and influenza occurred, accompanied by an epizootic of pneumonia; tonsillitis, broncho-nasal catarrh, and "feverish colds" ran through all the transports. In specially crowded boats the conditions were such as to cause no little anxiety; three deaths occurred in one of them. The insistence on ample deck space in view of epidemics was amply justified: no "isolation" hospital could do more than provide for sporadic cases. Six deaths occurred, all from pneumonia, four being secondary to measles or "influenza." Reports furnished at Colombo show 1,154 patients treated in hospitals since leaving Albany. Of 329 under treatment in hospital at this time, the classification was—67 venereal disease, 62 measles, 55 influenza, 21 pneumonia or pleurisy, 14 tonsillitis, 13 diarrhœa, 8 rheumatism, the remainder, various common ailments. At Colombo eight cases were put ashore and five requiring operative measures were sent to the flagship *Orvieto*. At the end of the voyage the health of the troops was good, but a large number of cases of measles awaited disposal.

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In those transports in which nursing sisters were in charge of a well-equipped hospital, ambulance personnel and the regimental medical detachments worked under them, practical training being supplemented by lectures. Regimental stretcher-bearers took duty in turn in hospital. By the end of the voyage a thorough grounding in principles had been given, and much useful experience, soon to bear a severe testing, had been gained before arrival.

Training

The voyage gave opportunity, for the most part fully utilised, of encouraging, by means of lectures and personal intercourse, the co-operation of the combatant branch with the medical service in promoting the common object of maintaining health among the troops. The men themselves were instructed in elementary first aid, particularly in the application of the first field-dressing, which, in most cases, is in the first instance applied by the soldier himself or by his comrade.

Inoculation and vaccination had in some units been put off, and procrastination brought its usual penalty. To promote essential discipline in this as in other matters, the G.O.C., A.I.F., issued a memorandum explaining the objects of the procedure. It concluded:—

Inoculation enforced

> It is therefore the duty of every officer and soldier cheerfully to submit to a simple medical precaution designed to nullify the danger of disease, both to himself and to his comrades, and thereby allow the force to be maintained in the field at its greatest and most effective strength.

Thereafter no refusal was accepted. A few men were discharged, but at no time did straightforward methods based on reason fail with the Australian troops.

In the flagship *Orvieto* tense preparation accorded with the character of the G.O.C., A.I.F., and his sense of urgent responsibility. General Bridges, hard on his staff—and harder on himself—was testing their endurance and capacity to the utmost. The medical staff came least within his direct concern; he saw it only—though grimly enough—out of the corner of his eye. Having laid down in A.I.F. Orders the

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administrative position of the Service, he left it to work out its own salvation, under the responsible supervision of the A.A. & Q.M.G.

Staff questions

Surgeon-General Williams found his chief concern in plans for providing improved equipment out of the ample "Red Cross" funds at his disposal. With his staff officer he worked out in complete detail a scheme—which was afterwards printed, though not put into force in the war—for a purely motor field ambulance. He does not appear to have taken any considerable part in staff deliberations, being of an unsocial and self-centred nature and not seeking intercourse, official or personal. In the A.I.F. his position had been defined, but he appears to have done little to consolidate it; and, though he had been the first to point out the possibility of internal autonomy for the Australian force, he appears to have left the problem of the relations between the medical service of the A.I.F. and that of the British Army to be decided by circumstances and "higher authority," giving little, if any, thought to the wider problems of internal administration in the medical service of the A.I.F. In this, it is true, he was not alone; indeed, it is difficult to see how under the circumstances finality could have been reached; nevertheless the lack of definite policy was seriously felt at a later time. He neither achieved nor, it would seem, attempted any personal understanding with his chief, with whom his relations were purely official. Divisional matters he left to the A.D.M.S. This officer, concerned with the immediate details of his administration and the routine of ship life, took little part in staff deliberations. The peace-time tradition, that the medical service held a secondary and purely ancillary position, had not yet been broken into by the rude realisation that in war it is a prime factor in the military situation.

It fell to the remaining medical officer attached to the staff to take the initiative, and to bring home to the combatant branch the fact that there were matters—such as the return to duty of convalescents and the quality of recruits—which were of radical importance to the maintenance of the army

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in the field, but to which they had as yet given no adequate attention. Being without any specific duties, Colonel Howse was free to interest himself wherever matters of consequence were being decided. But it was with the General Staff that his influence was most evident. Possessed of great tact, insight, charm of manner, incisive and convincing address, and an ambitious resolve to make his presence felt, he was able to influence the staff where Surgeon-General Williams, with vastly wider administrative knowledge but without his initiative and vision, failed to impress. Colonel Howse's career in South Africa paved his way, but it was undoubtedly in the intense and strenuous preparation in the *Orvieto* and in Egypt that he laid the foundation of his position in the A.I.F. He there established those peculiarly effective personal relations with the combatant branch which were an outstanding feature of his military career, and which enabled him to exercise an important influence on events outside the medical service.

Diversion to Egypt

On November 27th a wireless message was received by General Bridges in the Red Sea instructing him that "owing to unforeseen circumstances" it had been decided by the War Office that the force should train in Egypt, and that Australians and New Zealanders were to form an army corps under Major-General W. R. Birdwood. The reason for the change of destination was twofold—the declaration of war by Turkey, and, prior to that event, a memorandum to the Secretary of State for the Colonies from the High Commissioner for the Commonwealth (Rt. Hon. Sir George Reid) stating his "serious apprehension," based on the experience of the Canadian troops on Salisbury Plain, as to the advisability of bringing Australian troops direct to a winter camp in England.

On receipt of the message the flagship went ahead, and from Suez the G.O.C., A.I.F., together with certain members of his staff and unit representatives, proceeded to Cairo to report to the Egyptian Command and arrange for camp allotments. The A.D.M.S., 1st Australian Division, followed from Port Said.

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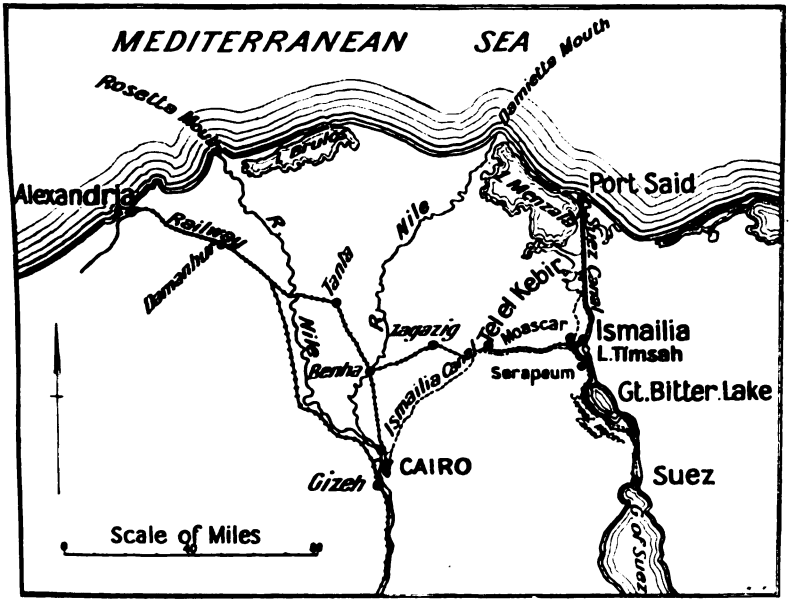
The D.M.S., A.I.F., did not accompany the party. On hearing of the change of plans, General Williams requested permission

Gen. Williams proceeds to England

to proceed on to England to carry out the arrangements for the five large hospital units of the Australian Medical Service which should be now *en route*. . . . It is almost certain that they will be employed in Europe at an early date,

giving as a further object the disposal of Red Cross money and goods which had been sent on to England. This proposal was approved by the G.O.C., A.I.F. "Should his



services be required in Egypt, the High Commissioner will be informed."

The Director of Medical Services remained on board the *Orvieto*, and, without getting into touch with the medical administration in Egypt, proceeded to England. The future of the "supernumerary medical officer" (Colonel Howse) would appear to have been again "in the melting pot." It was, however, promptly settled by General Bridges, with

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whom he had become very closely associated, and who intimated that he was not to go with General Williams, since there was other work in view for him. Its first instalment promptly appeared in the form of instructions to prepare for the disembarkation of the troops, which was to take place at Alexandria. For this function he was appointed "Embarkation Medical Officer" for the convoy and was provided with a small staff.

Disembarkation

As a preliminary to the preparation of a medical scheme, the D.M.S., A.I.F., supplied a schedule showing the distribution of all medical units, equipment, vehicles, and horses in the various ships; and a very exact scheme was embodied in the disembarkation orders of the A.A. & Q.M.G., 1st Australian Division. By the time Alexandria was reached, reports had been prepared by all transport S.M.O's (Senior Medical Officers) showing their sick in need of disposal and the medical and Red Cross stores held by them. By instructions of the General Officer Commanding the British force in Egypt,[6] the former were thus distributed—317 serious and contagious cases (among them 105 of measles) to the British Army Hospital, Ras-el-Tin, Alexandria; slight cases to a camp hospital at Mena, near Cairo, hastily improvised for the A.I.F. Medical and Red Cross stores presented difficulty. There arose the question, to whom exactly they belonged. In this question was really involved the whole problem of the financial relations between the Dominions and the Mother Country in the war. The generous handling by Great Britain of the awkward problem of the payment for supplies used by Australia, and the admirable arrangement ultimately arrived at, are matters for later description. For the time being the surplus goods were stored at the Alexandria docks.

Men, horses, vehicles, and equipment were disgorged from the troopships on the spacious Alexandria docks and entrained at once for Cairo; thence they proceeded by route march along the Mena road to a desert camp in course of preparation beneath the Pyramids which was to be their home for four strenuous and eventful months.

[6] General Rt. Hon. Sir J. G. Maxwell.

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On December 4th General Bridges reported "disembarkation of first Convoy completed at 11 a.m." On the same day there sailed for England from Australia 71 medical officers, 161 nurses, and 555 other ranks A.A.M.C., composing five line-of-communication units whose raising in Australia has been described. Before proceeding to narrate the medical circumstances attending the training of the A.I.F. in Egypt, it is necessary to give a short account of the voyage and disposal of these important units.

L. of C. Units sail

Left behind as unready when the first convoy sailed, the congeries of detachments and individuals from various States of the Commonwealth with their miscellaneous improvised equipment, which was to be assembled into the various "units," created a troublesome question of transport. To await the second convoy (consisting of the 4th Infantry Brigade, light horse units, and some 1st reinforcements) meant much delay. Shortly before the sailing of the First Convoy, the Minister for Defence, in response to suggestion by the commanding officers, agreed that all should sail together in a selected ship "under protection of the Red Cross." The coastal steamer *Kyarra* (6953 tons) was painted white, lighted as a hospital ship, and notified as such to the enemy powers, but was fitted up only for transportation of the five medical units concerned, hospital accommodation being only that provided on other transports.[7]

The officer[8] commanding No. 2 General Hospital was selected by the acting Director-General as "S.M.O." for the voyage, and was made a temporary colonel. The component parts of the several units, picked up at various ports from Sydney to Fremantle, became known to each other when assembled in the ship. Embarkation orders given by the acting D.G.M.S. to the "S.M.O." laid down precisely the principles which should govern the working and administration of these units oversea. Commanding officers were to detail officers "to positions for which they are professionally best fitted." The radiologist to No. 1 General Hospital was

[7] Justification for this arrangement was assumed under the terms of the mercantile adaptation of the Geneva Convention, 1907. Though there is no need to doubt its *bona fides*, this assumption was hardly justified.

[8] Lieut.-Colonel T. M. Martin, A.A.M.C.

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"to be considered as Radiologist to the Force": an eminent pathologist and anatomist was attached as "chief pathologist to all units"; and an eye and ear specialist was attached to No. 1 General Hospital with equipment for a department.[9] No transfers of officers or nurses from one unit to another were to be made without "approval of the Director of Medical Services of A.I.F." Special orders were issued for the nursing service of the A.I.F. On disembarkation all the units were to "report to and be under the direction of the D.M.S., A.I.F., from whom all orders will be received and to whom all reports will be made." Equipment and stores, official and Red Cross, amounted to several thousand tons, and were stowed with difficulty; some dozen motor-ambulance waggons were taken. No more representative or distinguished assembly of members of the medical profession of Australia was ever associated during the war.

Difficulties

The voyage was not a happy one. The vessel was greatly overcrowded; it was small, uncomfortable, and badly found —in short, quite unsuited for a transport, much more for a hospital ship. Under any circumstances the task of "commanding" on a long voyage a body of "leading" medical men from every State, for the most part newly-enlisted, with rank and status adjusted on no very definite basis, would have been no easy one. While for the great majority, officers and other ranks, the voyage afforded opportunity for the initiation of happy and serviceable relations, these did not always result; State and individual antagonisms were sometimes allowed to dim the vision of the high privilege and grave responsibility committed to the medical profession and medical service of Australia.

Training was carried out as far as the conditions allowed. Lectures were delivered to officers on military organisation and etiquette. The period of the voyage was recognised as a stage in the training of medical orderlies, and as much instruction as possible was given to the rank and file. In spite of adverse influences a good beginning was made towards welding individuals and ranks into a "unit"—a *sine qua non* to effective service. Under the hammer of toil and

[9] Provision for specialist departments was not included in British establishments till considerably later.

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9. THE TRANSPORT *Orvieto* AT PORT SAID ON 2ND DECEMBER, 1914

The *Orvieto* was flagship of the First Australian Convoy.

Lent by Lieut.-Colonel B. Quick, A.A.M.C.
Aust. War Memorial Collection No. C1686.

10. TROOP DECK OF A TRANSPORT SHOWING THE SLEEPING AND MESSING ACCOMMODATION

Taken by L/Cpl. A. W. Savage, No. 3 A.G.H.
Aust. War Memorial Collection No. J1354.

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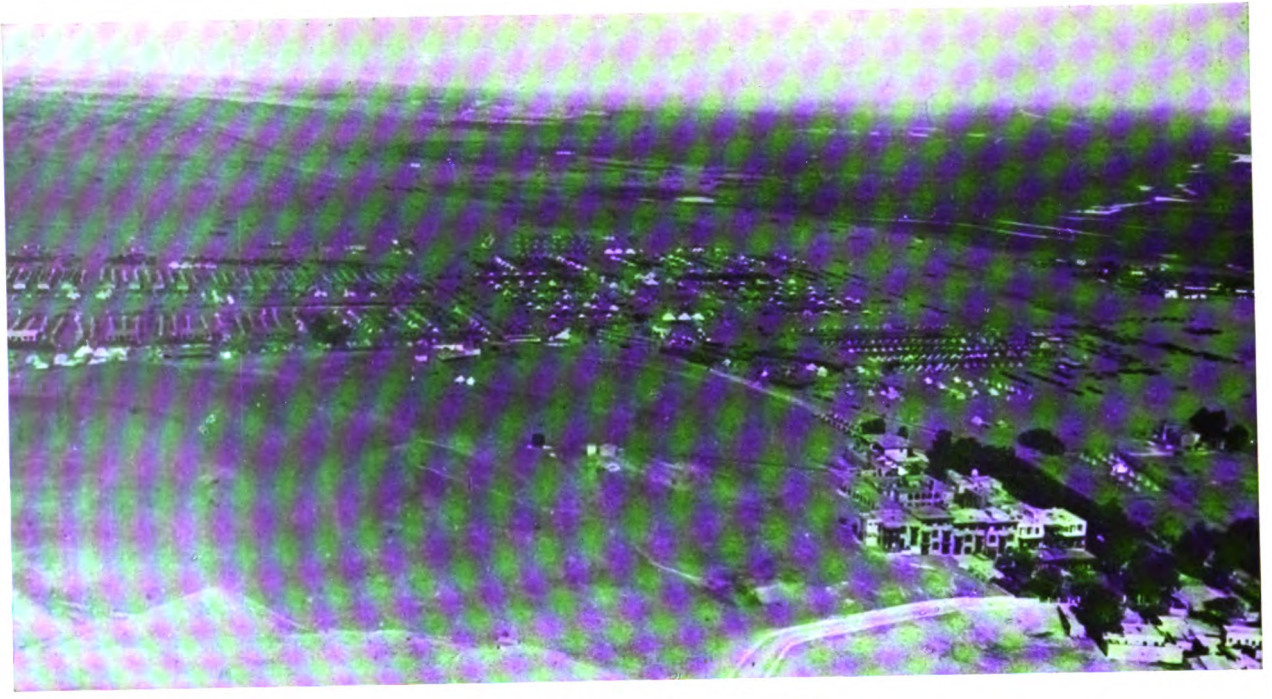

II. MENA CAMP, JANUARY 1915

Mena House Hotel may be seen in the foreground and the 2nd Field Ambulance on extreme left. The dark area bordering the horizon is the irrigated Nile-basin.

Aust. War Memorial Official Photo. No. G1654.

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difficulties overcome in common, such association would firm to a fine union, proof against vagaries of administration and vicissitudes of posting.

A sharp epidemic of ptomaine poisoning among the officers was the only serious malady that occurred. On arrival at Suez on January 13th a message brought the instruction not to proceed to England, but to await orders at Alexandria. There for the moment these units are left, while we follow events in the force already landed in Egypt.

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CHAPTER IV

EGYPT: ORGANISATION AND TRAINING

It was during the period of training in Egypt that there began to emerge two of the main medical problems—sanitation and invaliding—and also the great problem of orderly internal control of the service as distinguished from control of the purely military movements of its units. In the case of this latter problem, the method of self-government, originally implied in the despatch with it of the D.M.S., A.I.F., was departed from, partly through objection from the British command in Egypt and partly through the insufficiency of the A.I.F. machinery for dealing with purely administrative questions. The symptoms of the disorder which resulted began, as will be seen, immediately to show themselves.

* * *

The decision to disembark the force in Egypt was pregnant with momentous consequence to the future of the A.I.F. and to Australia. Its immediate result was a great change from the circumstances and conditions for which preparations had been made, and under which it had been expected that the several sections of the first Australian and New Zealand forces would be incorporated as formations in the British military organisation, forged into a weapon of war, trained, and furnished with the base organisation necessary to the maintenance of an effective field force. From the moment of landing in Egypt the Australian Imperial Force became closely involved in the military situation in Egypt and the Levant, and its medical problems were of necessity greatly influenced by the habits and conditions of life of the peoples of the Middle East. It is therefore desirable to describe briefly the position in which it found itself.

Pre-war medical situation in Egypt

The international agreement of 1904 concerning Egypt had left Great Britain free to develop a constructive policy for promoting the welfare of the people whose destiny had become interwoven with her own by the opening of the Suez Canal. Activities for public health were well organised on modern lines. "The Department of Health

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for the Interior," under Sir David Semple, devised comprehensive schemes for the control of epidemic and endemic diseases. The latter were widespread among the fellaheen—tillers of the soil who were still in the age-long grip of those almost immedicable conditions of life through which have evolved diseases such as bilharzia,[1] ankylostoma, and malaria. Associated with the Department were a fine bacteriological laboratory (which became the Central Military Laboratory) and a number of hospitals for infectious diseases. The Department of Quarantine—part of that system of international co-operation for controlling transmission of diseases which could not be relaxed even for a world war—was admirably administered by Sir Armand Ruffer. A laboratory and hospital at Alexandria were specially organised for the prevention of cholera, which was endemic at Mecca, the goal of an annual pilgrimage from Egypt.

The British army in Egypt had also its medical service, administered by a Deputy-Director, Colonel N. Manders, A.M.S. Besides the Egyptian army hospitals and some fine civil hospitals, there had been evolved, as part of the scheme under which the country was garrisoned, a system of reliefs and invaliding, associated with military hospitals and correlated with the maintenance of the British Army in India. Female nursing staff was supplied by Queen Alexandra's Imperial Military Nursing Service (Q.A.I.M.N.S.), the British Regular Army nursing organisation whose members are highly trained in the military hospitals at home or abroad.

Before the Australian and New Zealand contingents arrived, however, the normal situation in Egypt had been greatly complicated by the summoning to Europe of the British regular troops, and the entry of Turkey, Egypt's nominal Suzerain, into the war. The regulars had been relieved by a division of Lancashire Territorials, some Yeomanry, and two Indian brigades; and this augmented force, under General Sir John Maxwell, was now distributed in strategic zones. Of these, the most important was that of the Suez Canal, which, in addition to its natural purpose

[1] In 1910 Dr. M. A. Ruffer demonstrated bilharzia eggs in a mummy 3,000 years old (20th Dynasty).

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of joining West to East had been made to serve as a strategic boundary to Egypt against invasion from Syria across the Sinai Desert.

Distribution of Contingents

The Australian force was distributed in camps at Mena and Maadi: the New Zealanders at Zeitoun. The divergence of the lines of destiny of the Australian infantry and light horse (which was later to sunder them so effectually) began at disembarkation, when, "after consultation with me" (as General Bridges reported in his first despatch) "and with a view to equalising the force commanded by General Birdwood, the 1st Light Horse Brigade was by order of the General Officer commanding the Force in Egypt allotted to the New Zealand Expeditionary Force under General Godley." At the suggestion of the War Office the nursing sisters were placed at the disposal of the Deputy-Director of Medical Services for the Force in Egypt and distributed to various hospitals under the British matron, Miss M. E. M. Grierson. The experience thus gained, under sympathetic and able guidance, of the work and discipline in military hospitals was of the utmost value.

The camps.

The light horse found a pleasant and healthy home in the pretty village of Maadi. The Australian Division's camp at Mena—typical, in its general features, of the desert training-camps with which Australians were to become familiar—was being developed by the engineers of the Army of Occupation to form an organised encroachment on the Sahara from the terminus of the electric tramway which extends from Cairo to the Pyramids of Gizeh. Roads, water-supply, and sanitary system were under construction. Tents were available for only 8,500 men; the rest had been ordered from England. By December 11th General Bridges was able to report the whole of the troops under canvas; he added that "the excellent weather and nature of the soil make it no hardship to bivouac." Water was reticulated from the fine Cairo supply.

"Hints on Health" were issued as a leaflet by the D.D.M.S. for Egypt, supplementing General Maxwell's "Instructions to Colonial Contingents." "Egypt is a healthy

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country" (so the former stated) "and with the exercise of common sense and attention to the following hints sound health should be enjoyed by all ranks." The hints were mostly concerning venereal disease and intestinal infection, the chief factors in the latter being given as "raw fruit" and "chill." Measures against bilharzia were made disciplinary.[2] The sanitary system provided for the disposal of excreta by conservancy (carried out by native contractors). This was done with buckets, which were emptied—with frequent mishaps—by natives into open V-shaped iron trucks and removed by light railway for burial at "dumps" some 500 yards outside the camp. Protection against fly contamination was not at this time considered a matter of moment, nor were the measures for disposal of horse manure and garbage—namely, removal by natives for burial, supplemented by the use of a few imperfect incinerators—such as would control fly-breeding. Practical knowledge of the bionomics of the house fly was before this war uncommon. The fly season in Egypt is April–May and again from August to October.[3] In most camps there grew up behind the latrines a native quarter, which was seldom under effective sanitary control and, at Mena, at first grossly neglected.

Problem of Sanitation

Reference was made in an early chapter to a gap in the sanitary organisation of some of the field units. This omission was now rectified. Commanding officers were instructed to furnish from their establishment personnel for sanitary duties "to be at the disposal of the R.M.O." In place of a sanitary section (which, it will be recalled, being "Lines of Communication," had not been raised), part of

[2] Irrigating the intensely cultivated area on each side of the Nile, reclaimed from the surrounding desert by the annual inundation, is a network of "sweet" water canals whose sluggish streams form the water-supply, ablution places, and sewers for a dense native population, and their banks a home for certain fresh-water snails (*Planorbis boissyi, Bullinus,* and *Cleopatra*), the definitive and intermediate hosts respectively of *Bilharzia (schistosoma) hæmatobia;* the myracidia and cercariæ from which thus find their special host with high degree of certainty. *See also Part II, Ch. iv.*

[3] The great majority (80 to 90 per cent) of house flies are under ordinary circumstances bred in fresh horse-manure or garbage and human or other excrement. In this, under favourable conditions, the eggs hatch out within 48 hours to a larva or maggot, which in about a week pupates, by preference under a few inches of soil. The fully developed insect (imago) emerges in about five days, according to temperature, and, making its way to the surface (by alternate contraction and expansion of the ptilinum), is ready to breed within a week. Under favourable conditions the cycle from egg to egg may occupy only three weeks, and each female fly can deposit over 2,000 eggs during its life of three months or so.

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each of these was put under the D.A.D.M.S. "for divisional duties," with a non-commissioned officer in charge. This improvised unit is of interest as a forerunner of the "divisional" sanitary sections which later played an important part in the sanitary system of the Australian force. "Sanitation" in the light horse camp was effectively administered by an S.M.O., incineration being freely used.

Rations and messing

In camp the troops were put on the ration laid down for the Army of Occupation.[4] In lieu of a full issue of certain items (chiefly bacon, cheese, and jam) sixpence a day was allowed for "messing for variety." This scale was considerably lower than that to which the Australians had been accustomed, but opportunities for supplementing the ration were free and prevented dissatisfaction.

The comfort and cleanliness of messing and the convenience of the regimental cooks were greatly enhanced by the gradual erection of fine mess-huts, whereby the amount of sand in the food (a great discomfort when the "khamsins" began to blow) was also minimised.

Arrangements for sick

To accommodate the sick of the 1st Australian Division, Mena House Hotel had been taken over by the D.D.M.S. for Egypt, fitted up, and temporarily staffed by British medical personnel. It was nearly filled by the sick from the transports.[5] For the New Zealand and light horse brigades the fine Egyptian Army Hospital at Abbassia was allotted. It was staffed by the New Zealand Medical Corps, but with Australian nursing sisters under a British matron. The British staff at Mena was replaced on December 21st by Australian personnel from field ambulances together with twenty-one Australian nursing sisters. The use of field ambulance personnel was unwillingly conceded by General Bridges as a merely temporary expedient, he having "anticipated that sick of the A.I.F. would be treated as part of

[4] Fresh meat 1 lb., bacon 4 oz., cheese 3 oz., bread 1 lb., vegetables ½ lb., potatoes ½ lb., sugar 3 oz., jam ½ lb., tea ⅛ oz., salt ½ oz., pepper 1·36 oz., mustard 1·20 oz.; caloric value, approximately 4,229 (*Analyses and Energy Values of Foods*, by R. H. A. Plimmer, D.Sc., 1921). Cost 1s. 4d. to 1s. 5d.

[5] Among these were the still vomiting victims of ptomaine poisoning. None of these died, but many were seriously ill. The vomitus was examined at Mena for arsenic, with negative result, the cause of the outbreak, as usual, remaining obscure. Occasional outbreaks of ptomaine poisoning formed part of the troubles of transport by sea.

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the Army . . . and the War Office make claims for all charges." In the disposal of the Australian line-of-communication medical units he had not hitherto interested himself. Faced, however, with the "unsatisfactory arrangement" of a division which was self-contained as regards sick, at the instance of his A.D.M.S., he suggested to the D.D.M.S. for Egypt that "we should arrange to disembark a clearing or stationary hospital now on the way from Australia." This step, however, the D.D.M.S. considered unnecessary. The three field ambulances were thus allocated —No. 1 as a convalescent dépôt, No. 2 for venereal disease, No. 3 as an infectious disease hospital. No outlet by invaliding existed, and, with disease increasing, medical units and also the regimental medical establishments became engrossed in the care of the sick, to the serious detriment of their field training, which, in combatant units, had begun at once and was being pressed by General Bridges with fervid energy.

By the end of December the routine of camp life and of training were in full swing, and problems of great moment were demanding attention, some local and incidental, others of far-reaching general significance, on the satisfactory solution of which greatly depended the future of the A.I.F. and of its medical service. On arrival in Egypt the Australian force[6] had found itself 8,000 miles from its home base under circumstances unique in the history of military co-operation. The question, hitherto academic, of the position of the antipodean troops now became pressing. It presented two aspects; the military, concerning their most effective service; the national, concerning "self-government," finance, maintenance, and so forth. The latter involved matters of great complexity, which nevertheless required prompt settlement. These adjustments had to be carried out during a national struggle for existence—possibly the circumstances best adapted to that end.

Problems of Self-government

[6] The New Zealand Expeditionary Force—at this time one infantry and one mounted brigade—was faced with the same problems, military and national, as the Australian. The two forces were entirely distinct; New Zealand indeed vigorously combated any idea of absorption by Australia. The outlook and characteristics of the two dominions differed considerably in many respects. The N.Z.E.F. was commanded by Major-General Sir Alexander Godley, his A.D.M.S. being Lieut. Colonel W. Will, N.Z.M.C.

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The decision by the War Office that the Australian troops should train in Egypt formed part of a comprehensive scheme for their effective service. The selection by Lord Kitchener of a commanding officer and headquarters of an army corps, to unite Australasian front-line troops in a single formation, had preceded their arrival. General Birdwood, with his staff, arrived on December 21st, and on the 24th a scheme for the constitution of the Australian and New Zealand fighting formations into an army corps was submitted by him to the G.O.C., A.I.F. (General Bridges). The latter, in turn, made proposals for the organisation of an A.I.F. "base" in Egypt.

A. and N.Z. Army Corps created

The organising of the army corps was complicated by the fact that a large part of the Australian troops were light horse. The normal composition of a corps could therefore not be followed, and the "Anzac"[7] Corps was constituted by associating the 1st Australian Division under General Bridges with a composite division under General Godley, which included the New Zealand and 4th Australian Infantry Brigades and two mounted brigades—the New Zealand Mounted Rifles and 1st Australian Light Horse. The new division was known as the New Zealand and Australian, or "N.Z. and A."

In addition, some adjustment was needed in the establishment of field units, in which, however, the medical service was concerned but slightly.[8]

Formation of A.I.F. "base," Egypt

The affairs of the A.I.F. had hitherto been dealt with by the staff of the 1st Australian Division, but as soon as the force had settled into camps and training had begun, General Bridges had set his staff to work at the task of deciding upon the character of a base organisation for the A.I.F. abroad. His purpose in this was as much to free

[7] A convenient abbreviation devised about this time.

[8] It was decided by the corps staff that, in order to bring them into line with the British cavalry field ambulances, the bearers of the light horse field ambulances who, in the Australian service, designed for Australian conditions, were mounted, should be dismounted. The change was strongly opposed by the D.M.S., A.I.F., when made aware of it, on the ground (later found to be fully justified) that mobility would be dangerously impaired. Surg.-Gen. Williams ultimately achieved his object.

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12. A REGIMENTAL MEDICAL DETACHMENT WITH MALTESE CART ON PARADE AT MENA CAMP, MARCH 1915

Aust. War Memorial Collection No. H13984.

13. THE 3RD LIGHT HORSE FIELD AMBULANCE TRAINING AT MENA CAMP, MARCH 1915

Aust. War Memorial Collection No. A2709.

To face p. 54.

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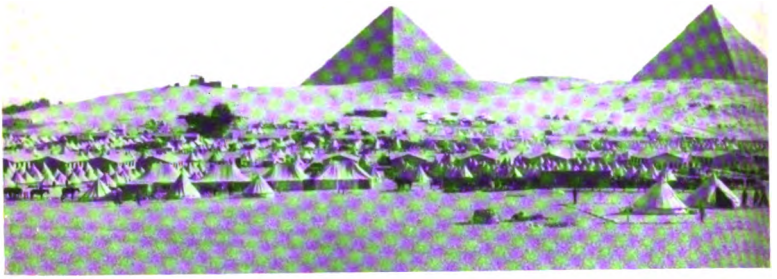

14. Part of Mena Camp, showing marquees of the 2nd Field Ambulance (in distance below pyramid)

Aust. War Memorial Collection No. A2741.

15. A camp kitchen at Maadi

The camp oven (of baked mud whitewashed) has three flues leading to one chimney. The camp kettles ("dixies") fit into the holes.

Lent by Lieut.-Colonel P. Fiaschi, A.A.M.C.
Aust. War Memorial Collection No. A2716.

To face p. 55.

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himself for the divisional command as to consolidate his command of the A.I.F. It soon became evident that the involvements of the latter must be great, particularly if the line-of-communication and base medical units should disembark in Egypt. In consequence of the change of destination the arrangements made for utilising the normal seat of Imperial *liaison*—the High Commissioner's Office in London—as the administrative headquarters of the force became impracticable. Yet an A.I.F. headquarters overseas was necessary, not only for immediate requirements, records, pay, finance, reinforcements, invaliding, and so forth, but in order to preserve the identity of the force, which the position of G.O.C., A.I.F., had been created to secure. The matter had already been the subject of communications from the War Office and of close consideration by Generals Bridges and Maxwell. Early in December it was laid down by the War Office that Egypt would be "the temporary base for the first contingent." The overseas dépôt and all auxiliary services were to be established there, and were to include an "Intermediary Records Office" for all the Australian troops abroad. There would be no objection to the Commandant communicating direct with Australia, but doing so under the orders of the General Officer Commanding the British Force in Egypt. The problem was "appreciated" from the military standpoint by General Bridges' chief of General Staff (Lieutenant-Colonel C. B. B. White), who submitted a scheme based on the following premises:—

There are two antagonistic principles: (i) The Australian Imperial Force must be entirely dependent for maintenance on the Army, etc., of which the War Office decrees for the time being it is to form part. (ii) The Australian Government are bearing the cost of maintenance, intend to keep the force up to strength, and are, as far as they are able, assisting in the supply of stores, forage, etc.

The proposed "base" (named the Australian Intermediate Base Dépôt) would be the organisation through which the Australian part of these responsibilities would be carried out. General Bridges' proposals set out in detail the composition of its headquarters:—

Through such an organisation all local administrative questions affecting more than one formation should be dealt with. All routine

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correspondence with the Australian Government and the High Commissioner in London should be conducted by it, but questions of principle affecting the whole force and matters such as the alteration in rates of pay which has already occurred should, I think, be referred to me.

He recommended that the base dépôt should comprise the following sections:—Records, correspondence, finance, ordnance, medical, base details, and remounts. The medical section, it was considered, would

take charge of any general hospital formed and make the necessary financial and other arrangements for its maintenance and administration. Its services are also required in dealing with the considerable quantities of Red Cross and other medical stores already unloaded, which may shortly be augmented by re-transfers from England.

In the event of any medical unit now being raised in Australia disembarking here, this section would be available for disposing it.

In conclusion, General Bridges added:—

My command was originally the Australian Imperial Force, but the Commonwealth desired that, when the inevitable separation took place, I should take command of the 1st Australian Division. I therefore suggest for consideration that the time has now arrived for me to assume command of the Division and to pass to Army Headquarters and the base dépôt to be formed all general administrative subjects except those matters referred to above (questions of principle affecting the whole force).

The scheme as a whole was approved by the G.O.C., A. & N.Z. Army Corps, and, having been referred to General Maxwell, was authorised by Army Order of January 13th. A skeleton staff, already operating (including as Commandant the A.A. & Q.M.G., Colonel V. C. M. Sellheim), was taken from the divisional headquarters much as the rib was taken from Adam, since the department was not independently "established," but remained throughout the war improvised, its personnel being seconded from other formations.

Medical Section not formed

Through the absence of the D.M.S., A.I.F., and the uncertainty regarding his status, the medical section was not filled. The record section was formed "in order to make a link between the forces in the field, the War Office, and Australia." Attestation forms, nominal rolls, and like records were retained in this intermediate office, which now

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made the arrangements for returning to Australia such men as were discharged or invalided. The purpose of the pay section was "to provide pay for the Australian troops and to arrange for the reimbursement of the Army exchequer." The problem of financial adjustment within the British Empire is not the least important or least delicate of the understandings, tacit or explicit, that maintain the British Commonwealth of Nations. While consideration of the problem in its national aspect does not come within the scope of this work, it may be said, in connection with the sick and wounded, that from the first, in her financial arrangement with Australia, Great Britain was peculiarly generous. The initial arrangement, communicated to Egypt on December 10th, provided that, while the Commonwealth and Dominion Governments "had undertaken complete financial responsibility for their contingents," only certain claims would be presented. Those directly affecting the medical service were as follow:

Financial adjustments

Hospital treatment. A daily charge of 2s. per head will be made for treatment in ordinary military hospitals—under special hospitals the actual cost will be recovered.

No charge will be made for—

(*a*) Accommodation (either capital cost or rent) other than the cost of billeting.

(*b*) Barrack and hospital stores.

(*c*) Cost of land or inland-water travelling after disembarkation in Egypt.

While engaged in active operations, supplies should be issued free of charge while these conditions continue.

To maintain *liaison* between the G.O.C., A.I.F., and the "A.I.B.D." (as the Australian Intermediate Base Dépôt soon became known) "an Assistant Military Secretary" was appointed (later Deputy-Adjutant-General or D.A.G., A.I.F.). This officer, with the G.O.C., A.I.F., and a small clerical staff, formed the nucleus of an A.I.F. Headquarters in the field. On the organisation thus tentatively designed and established of a "Military Secretary" and an "Australian Intermediate Base Dépôt" was in time built up the machinery of A.I.F. interior economy and self-maintenance.

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The organisation of the A.I.F. synchronised with developments in the British military administration under General Maxwell which made a considerable change in the military and medical situation in Egypt. In view of the increasing number of troops in the country, and of the various rumours—condensing into definite anticipations—concerning defensive and offensive operations in the East, a full medical staff for an expeditionary force was sent to Egypt. Surgeon-General R. Ford was appointed D.M.S. for the Force in Egypt, Colonel N. Manders A.D.M.S. for the Cairo district, Colonel T. B. Beach A.D.M.S. for Alexandria, and Colonel W. H. B. Robinson D.D.M.S. for the Suez Canal defences.

Important appointments

The formation of the Anzac Corps was associated with a medical appointment which had far-reaching consequences. Colonel Ryan, the A.D.M.S. of the 1st Australian Division, was transferred to corps headquarters in a clinical capacity, his previous position being filled on 28th December, 1914, by the appointment thereto—made by General Bridges—of Colonel Howse, who at the time was in charge of Mena House Hospital. This appointment of Colonel Howse coincided in time with developments important to medical activity. Though the health of the force was not such as to cause special concern—the D.M.S. for the Force in Egypt had reported weekly to the War Office that health was "good"—the situation presented disquieting features. The incidence of certain forms of infectious disease, in particular venereal, was rapidly increasing and, in the absence of outlet, had perforce to be treated within field formations. Mena House being of limited capacity and without convalescent facilities, the sick became dammed back to the field units, wherein "unfits" accumulated. There was no outlet to this "bag's-end"; the divisional medical service was immobilised. On January 8th General Bridges, at the instance of his A.D.M.S., laid before the Corps Commander "as an urgent question the relief of the 1st Australian Division from the medical duties undertaken temporarily . . . in order that the training of the Field Ambulances be not prejudiced and the Division not hampered when ordered to move."

Ambulances immobilised

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The needs that had arisen were those which the medical units in the hospital ship *Kyarra,* now approaching Egypt, were designed to meet. In a personal interview authorised by General Bridges, this was pointed out to the D.M.S. for the Force in Egypt by Colonel Howse, and this vessel, which arrived at Suez on January 13th, was held at Alexandria pending a reply to a cable to the War Office concerning the disposal of the units on board, the Egyptian Command being still in the dark as to this matter. On the 16th instructions were received to disembark ("all orders for movements to issue from Headquarters, Egypt"), and the D.M.S. for Egypt issued orders to "the Senior Medical Officer" for disposal of the five units. At this stage, however, there arose a crucial situation in the A.A.M.C. which synchronised with—and was probably related to—a change in the A.I.F. itself. The simplicity and convenience of maintaining a distinction between control of the strategical and tactical moves of Australian medical units (which would normally be exercised by the Imperial authorities), and control of their interior economy (which was the office of the D.M.S., A.I.F.) was being confused and lost sight of in the various and often conflicting views and interests concerned. Before disembarkation the officer commanding the 1st Australian General Hospital made, on personal grounds, a change in the posting and status of the senior members of the Australian Nursing Service, the "Principal Matron" of No. 1 (Miss Jane Bell) being transferred as "House Matron" to No. 2. The transfer, with other drastic changes, was published in Australian & New Zealand Army Corps orders.[9] The D.M.S., A.I.F., was then in England and these changes were made with the concurrence of the D.M.S. for Egypt, but were unknown to the "Senior Medical Officer"[10] appointed by the acting D.G.M.S. in Australia, and were in disregard of the instructions that "no transfers of officers or nurses from one unit to another are to be made without orders

L. of C. Units arrive

Incipient confusion

[9] "A.I.F. Orders" were not now issued, their place being taken by A.I.B.D. "Notifications and Instructions." With their cessation disappeared the outward and visible sign of an Australian Imperial Force.

[10] The officer commanding No. 2 A.G.H.

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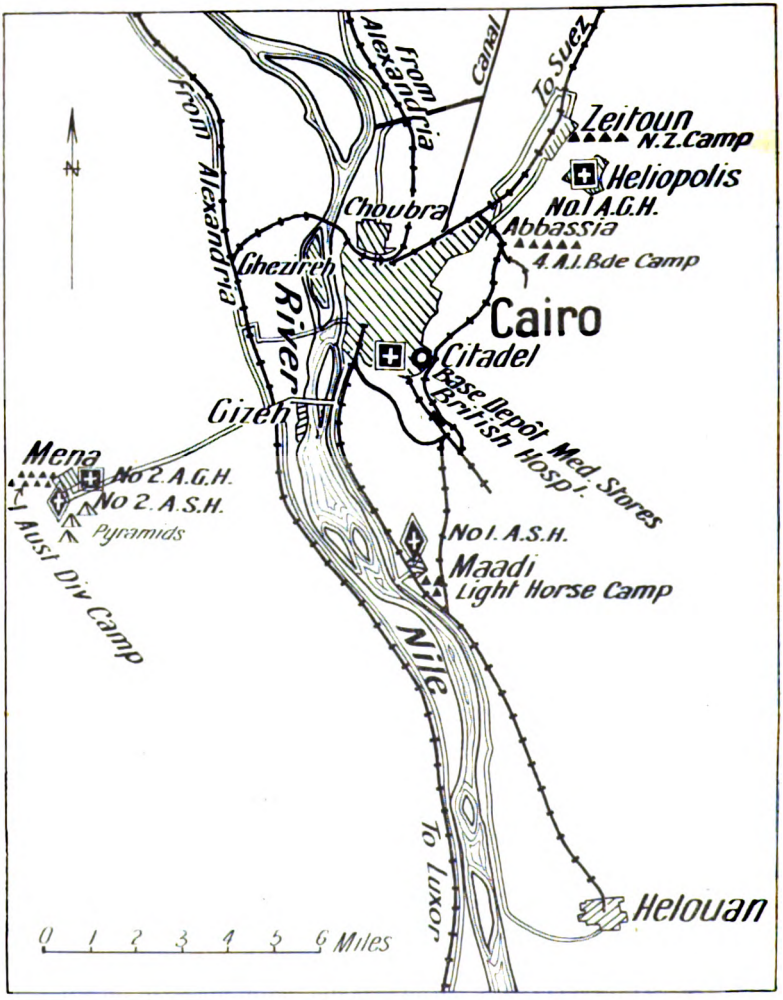
Map No. 1



CAIRO DISTRICT SHOWING CAMPS AND HOSPITALS, MARCH 1915

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from the D.M.S., A.I.F." The action was, to say the least, unfortunate, and was the forerunner of internal trouble with unhappy consequences.

Distribution of Hospitals

The units were distributed to serve the two chief centres where Australian troops were concentrated—the 1st Australian Division camp at Mena, and those in process of formation on the eastern side of the Nile around the oasis of Heliopolis and at Zeitoun. To the former were allotted No. 2 General Hospital and No. 2 Stationary. On January 25th the general hospital took over Mena House with 271 cases ("chiefly influenza, measles, and gastric conditions"). On the 26th 230 cases were admitted from the camp—"the first time" (as the diary of the A.D.M.S. records) "I have been able to clear the lines partly of sick." Thirty-five hospital marquees for general and seven for isolation cases were pitched in the vicinity, and by December 31st 612 were under treatment.

Disembarking on the 22nd, No. 2 Stationary Hospital was allotted an adjacent site to accommodate the cases of venereal disease which by this time choked the lines. On the 26th 151 cases were admitted and an armed guard was posted. By the 30th the officer commanding reported the hospital full, with 300 cases, 150 more requiring admission. The free and easy conditions under which treatment in the lines had been carried out were replaced by a relentless quarantine quite unrelated to any actual risk of transmission. The change was, indeed, a terribly drastic one, and, while the earlier laxity may have failed to inculcate a salutary fear, the new stringency (which accorded with that in all such hospitals at this period of the war) did not conduce to the restoration of self-respect. The professional treatment of this most difficult class of case, however, was carried out with sympathy and skill, and both camps and cases were benefited. The hospitals at Mena were placed by Surgeon-General Ford directly under the A.D.M.S., 1st Australian Division.

Of the units allotted to the N.Z. & A. Division, No. 1 General Hospital was sent to the Heliopolis Palace hotel, and opened for cases on the 25th. Situated on the outskirts of Cairo, and connected therewith by a fine road along which

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were situated the Egyptian Army hospitals and barracks, the Heliopolis oasis at the outbreak of war was being made a fashionable suburb and amusement centre for Cairo. Buildings were modern, with electric light, water, and sanitary system. The railway station at Pont de Koubra, half-a-mile distant, was connected with both Alexandria and Suez railway systems. The Palace hotel itself was a huge block, and its opening kept the administrative staff fully occupied. Clinicians were at first much at a loose end, especially the surgeons. Shortly after arrival the registrar was made consulting ophthalmic surgeon to the force in Egypt, retaining, however, his administrative position. For the large number of cases of measles, tents were erected near the hospital, but a special block was soon found necessary. For venereal disease a tented centre was formed at the "Aerodrome Camp" nearby.

No. 1 Stationary Hospital was allotted to Maadi Camp (hitherto served by the light horse field ambulance, evacuating to the Egyptian Army Hospital), and No. 1 Clearing Hospital was lodged with No. 1 General, pending allotment of a site near the New Zealand camp at Zeitoun. On the 26th, however, the commanding officer received an urgent message from the D.M.S., and reported that he could move off complete at three and a half hours' notice. On the following day, with a section of No. 1 Stationary Hospital, the unit entrained for the Suez Canal on special duty, the nature of which will presently appear.

The arrival of these units was timely, meeting the crest of a wave of sickness, the circumstances of which will receive special notice. It also set free the field ambulances to participate in the training, which, in the infantry, had now reached the stage of "battalion training."[11]

Invaliding begins

The hospital ship *Kyarra* was used to effect the first removal from within the Australian Imperial Force of unassimilable elements (men found to be unfit for service through physical or moral defect) and of the waste products of normal wear and tear (invalids). Early in December

[11] For the infantry division a very exact system of training had been laid down, beginning with individual training and progressing through company, battalion, and brigade training to divisional exercises. Light horse training was on more general lines.

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regimental medical officers of the infantry division were instructed to select for medical "boarding" men who were thought unfit for service. From December 26th a medical board of ambulance officers sat daily at No. 2 Field Ambulance and by January 23rd had examined 209 men of the division, of whom 173 were found "unfit for further service," the great majority because of disabilities existing prior to enlistment. At the same time commanding officers had been instructed to send in the names of "incorrigibles" for return to Australia—the extreme penalty in the A.I.F. With a staff of one medical officer, ten nurses, and nine orderlies, drawn from general hospitals, the *Kyarra* sailed for Australia on February 3rd taking 169 invalids and 132 disciplinary cases. Preparations began immediately for further clearance, and the procedure for invaliding to Australia was placed on a precise basis by a circular issued by the Commandant of the Australian Intermediate Base Dépôt. Among the unfits awaiting return were some who had arrived from Australia during the same week.

Second Contingent arrives

The first evacuation of unfits occurred at the same time as the first intake of reinforcements for the maintenance of the force.[12] These arrived on January 31st by a second flotilla (convoyed by the Australian submarine *AE 2*) and with them came the additional units raised on the initiative of the Commonwealth Military Board,[13] namely, the 4th Infantry Brigade, 2nd Light Horse Brigade, and some line-of-communication units (field bakery, field butchery, and dépôt unit of supply). Medical personnel included, besides regimental officers, the 4th Field Ambulance and 2nd Light Horse Field Ambulance. The voyage bore a close resemblance to the first, prevailing diseases being measles,

[12] By *Field Service Regulations*, first reinforcements, at the rate of ten per cent for all units, would accompany an expedition and be held in its overseas base to bring the force to strength when it took the field. These had not come with the first contingent; but General Bridges was informed, in response to a cable, that they were being sent by a special convoy, and that second and subsequent reinforcements to the number of 3,300 monthly would be despatched as transports became available. They were to provide for the several arms in the ratio of infantry 15 per cent, light horse 10 per cent, artillery 5 per cent, engineers 3 per cent, administrative services, including medical, 2½ per cent, lines of communication 2 per cent.

[13] The uncertainty as to the status of the Australian force is illustrated by the contention of the Commanding Officer of the 4th Infantry Brigade that his command was "an Australian Formation" and not part of the A.I.F., which had been raised at the request of the British War Office.

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influenza, and pneumonia, the latter as a primary epidemic in some transports. Deaths numbered approximately one per 1,000 (against 0.4 per 1,000 in the First Convoy), six occurring in one transport. The 3rd Light Horse Brigade with its field ambulance arrived in Egypt on March 10th. The 4th Infantry Brigade completed the N.Z. & A. Division, occupying the "Aerodrome Camp" at Heliopolis; the 2nd and, on its arrival, the 3rd Light Horse Brigades and corresponding field ambulances became "corps" troops. With their arrival No. 1 Australian General Hospital became fully occupied.

To accommodate the reinforcements there was formed by the Commandant, A.I.B.D., at Abbassia, a "base details camp," to which were sent also men for return to Australia, not held in hospitals.

Turks attack Canal.

The passage of the Suez Canal would have been made with added interest to the troops of the Second Convoy if they had known that within a day's march three columns of Turks were converging in a well-organised and determined attack on the defences of Egypt. The idea of a decisive blow by the Allies against the heart of enemy activities in the East had not yet become sufficiently definite to divert the Turk from a determined effort to win the coveted prize of Egypt, the defence of which had not yet gone beyond the simple device of "digging in" on the western bank of the Canal. This front was organised in three sectors, held by two Indian divisions. The Turkish attack, involving the formidable task of conveying across the Sinai Desert artillery, supplies, and pontoons, though not a serious menace, gave a foretaste of the quality of the troops against which part of the A.I.F. was to be pitted for the period of the war. In the fighting on February 2nd, 3rd, and 4th the enemy (who crossed the Canal at Tussum) was easily repulsed, and retreated over the desert, losing some 3,000 men; British and Indian casualties numbered less than 160.

The New Zealanders took part in the fighting. The 1st Australian Casualty Clearing Station (as hereafter officially designated), and a section of No. 1 Stationary Hospital, formed part of the advanced clearing units for the British force engaged. Evacuation was based on railheads at Port

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Diagram No. 2

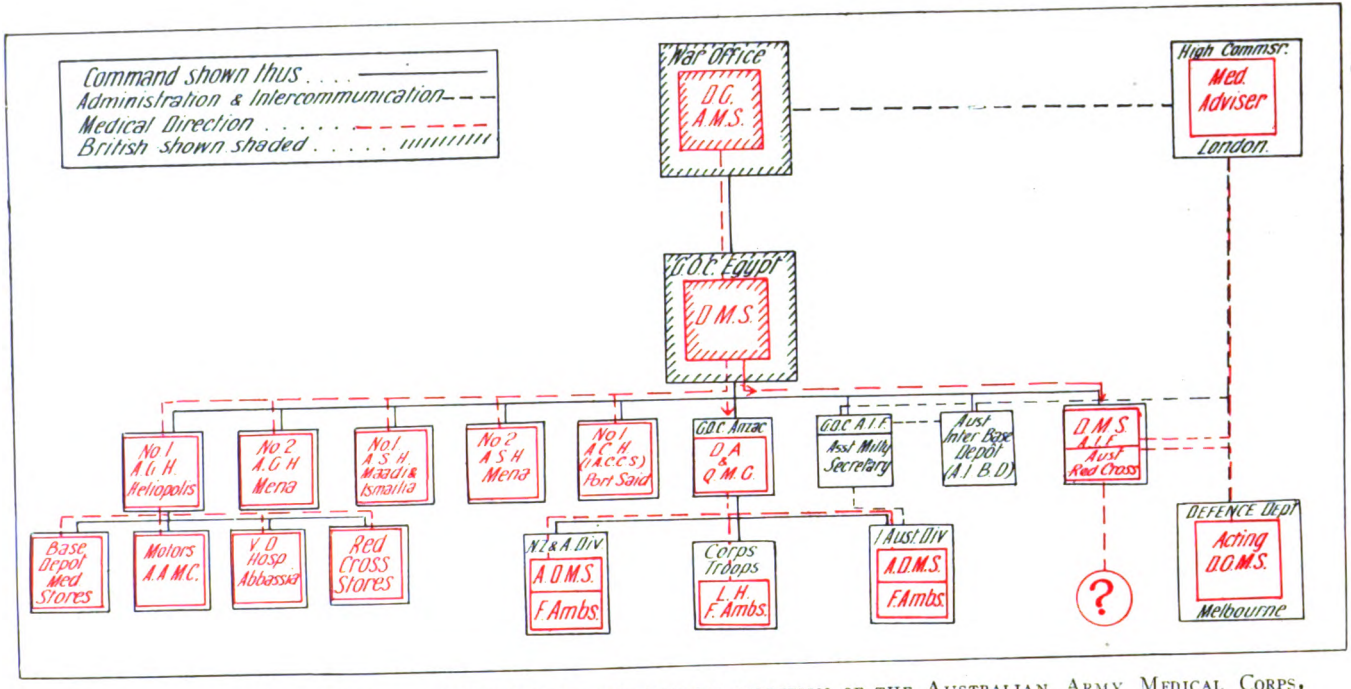

TABLE ILLUSTRATING COMMAND, ADMINISTRATION, AND MEDICAL DIRECTION OF THE AUSTRALIAN ARMY MEDICAL CORPS, MARCH 1915

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Said and Ismailia, whence wounded were sent by hospital train to Cairo and distributed there by the Australian motor ambulance waggons. The clearing station, with twenty-one nurses from Nos. 1 and 2 General Hospitals, took over a French convent at Port Said. The stationary hospital detachment and nine nursing sisters from No. 2 General formed a clearing hospital at Ismailia, and on February 3rd received wounded, chiefly from warships in the Canal in the neighbourhood of Tussum. Two men died; most of the wounded did well. The clearing station attended a large number of sick, and its motor ambulance waggon was used by the D.D.M.S. for the Canal Defences to evacuate enemy wounded from the eastern bank of the Canal. Both units were inspected by the D.M.S. for India, Surgeon-General W. Babtie, V.C., who considered the casualty clearing station "very satisfactory" and expressed his "entire approval of the work, appearance, and general smartness of the Australian Stationary." On February 24th the clearing station, and on the 26th the stationary hospital, in response to urgent summons, returned to Cairo, where both units found themselves involved in great events and soon in the vanguard of a move "for service out of Egypt," for which the whole Australian force was now in urgent preparation. Further events in Egypt during February demand a brief notice.

D.M.S., A.I.F., returns

Throughout this vital time in the affairs of the A.A.M.C., the D.M.S., A.I.F., had been absent, and, through no fault of his own, his visit to England had been largely futile. The medical department at the War Office was at this time under the direction of Sir Alfred Keogh, as Director-General of Army Medical Services ("D.G.A.M.S."). General Williams expected to be upon his staff, or at least closely associated with his department, administering the interior economy of the Australian Army Medical Corps and maintaining a direct influence on the working of the service. The conduct of Australian affairs in England was through the High Commissioner (at this time Sir George Reid), who had offices in Victoria-street, London, and a staff which included a military adviser and civilian medical officer. In

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addition to his (so to speak) ambassadorial function, the High Commissioner, during the first year of the war, assumed considerable direct military responsibilities. It is sufficient here to state that Surgeon-General Williams had found that his own position was necessarily to some extent that of a member of the High Commissioner's military staff, but he had also established direct relations with the D.G.A.M.S. While in England, he had also employed part of the large Red Cross funds at his disposal to purchase for the A.I.F. motor ambulance waggons, medical equipment, and drugs. He formed a local "Red Cross" dépôt at the High Commissioner's office, and also established relations with the British Red Cross Society, handing over for the use of the British units in France large quantities of warm clothing not now required by the A.I.F. At the request of General Bridges he went into the matter of travelling kitchens for the infantry. Hearing early in January of the changed destination of the Australian line-of-communication units, he arranged to return to Egypt, but was detained for a fortnight by the High Commissioner, so that by the time he arrived the reorganisation of the Australian Imperial Force was complete. On February 2nd General Bridges had recommended to the corps commander that "since the Australian Imperial Force no longer exists as a single unit" the services of Surgeon-General Williams should be utilised by "attaching him to Army Headquarters for duty with the Australian Section Base Dépôt." On arrival he interviewed the G.O.C., A.I.F., and his position was discussed, but without conclusion. The attitude of General Bridges to the A.I.F. as an administrative unit was now definite. He desired to divest himself to the utmost of its trammels.[14]

But his position undefined

General Williams established in Cairo an office having relations with the D.M.S. for Egypt and with the Australian Intermediate Base Dépôt, but he corresponded with Australia and the War Office through the High Commissioner. At the request of the D.M.S. for Egypt, in communications to

[14] The explanation of his attitude is clear, and the situation perhaps inevitable. The force had still to prove itself, and, though the fierceness of the testing could hardly have been foretold, General Bridges felt strongly the significance of the first effort and devoted all his energy to ensuring preparedness for it.

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the Egyptian Command he signed himself "Surgeon-General, A.I.F.," otherwise retaining the signature "D.M.S., A.I.F." The question of his status having been submitted to the War Office, the reply was that he was a "Deputy Director of Medical Services." To whom "deputy," was not made clear. It cannot but be regarded as unfortunate that full recognition was not accorded at this early date to the principle that, while for service the Australian medical service was under British direction, its interior economy could only be administered by an A.I.F. officer of adequate rank and status. His staff remained unchanged—a staff-sergeant and a clerk. "After much discussion" (a record of his office states) "his duties boiled down to administration of the Red Cross vote, collection and distribution of Red Cross stores and surplus medical stores off incoming transports, and counter signature in connection with expenditure by Australian hospitals."

Medical and Red Cross stores from the First Convoy had been used to form at Mena House an improvised base dépôt of medical stores for the requirements of the 1st Australian Division. The collecting of stores now arriving in the transports from Australia, or being sent to his order from England, soon became a problem beyond the scope and facilities of the small staff of the D.M.S., A.I.F.

At the request of the D.M.S. for Egypt, he inquired into the dispute engendered by the irregular readjustment of the nursing service, and recommended the resumption of the postings and status laid down in Australia. No action was taken by Surgeon-General Ford to enforce the decision; the trouble continued, and was associated with unseemly and demoralising bickering within the 1st General Hospital.[15]

Training in the Desert

The period of which the events have been under review was a very strenuous one for the citizen soldiers of Australia and New Zealand. While administrative and staff officers took stock of the situation as it unfolded itself in the march of events, and, with what vision and insight they might, built for

[15] Requested by General Ford at a later date again to take this matter in hand, he concluded his ruling with the order "that this question of inharmonious dealing is neither creditable to Australia nor conducive to the welfare of the

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the future, in the field formations in the camps at Mena, Maadi, and Heliopolis officers and other ranks of all arms had set themselves wholeheartedly—to a time-table that did not err on the side of softness—to master the technical details of service in the field. The A.I.F. threw itself "berserk" into the life and training of the military camps of Egypt, sustaining in the process some damage, but emerging a highly efficient and generally healthy field-force. Though the pre-occupation of field ambulance and regimental officers in the care of the sick had somewhat curtailed the opportunity for "individual" and "unit" training, this omission was the less important from the fact that the training was found in the work itself, and from the middle of February medical units became free to engage in field exercises in attack and defence over the desert, which already were bringing the infantry, light horse, and artillery units to a high state of efficiency. All brigade units took part in occasional field days: advanced dressing stations were formed in the desert; "wounded" were collected from dummy trenches. In one respect, it would appear, their practical training was defective, namely, in the method of co-operation between field units and regimental establishments, this shortcoming being in large part due to the preoccupation of the regimental stretcher-bearers in their duties as bandsmen. By *Field Service Regulations* all ranks were concerned in one item of medical training, to wit, "sanitation." In this matter camp experience at this time was far from salutary. Sanitation in the field is a matter of the education of individuals to an unaccustomed routine, and in all education early impressions are apt to be retained. Neatness, it is true, and even cleanliness in a general way became almost a fetish; but, from the strictly "sanitary" standpoint, the conditions in most of the camps left an impression of open latrines and unimpeded fly-breeding, and in general set a standard which, if sufficient for the circumstances, fell below the requirements of the more exacting conditions that were to face the force in the great events of the future.

Defects

hospital and its patients, and it must cease forthwith; otherwise there will be no course open but to refer the matter to higher authority, with a view to convening an independent court of inquiry under R.A.M.C. officers, which would be a lasting disgrace to the Australian Medical Service."

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CHAPTER V

EGYPT: THE FIRST IMPACT OF DISEASE

DURING the four months spent by the I Anzac Corps in Egypt a rather serious outbreak of infectious diseases befell the force. But before proceeding to describe it a brief note is desirable, first, on the general situation in respect of the prevention of disease in the British Army into which the Australian force was absorbed, and, second, on the circumstances and environment in which the latter in particular now found itself. It is also desirable to explain the lines upon which the subject of disease prevention will be dealt with in these pages.

* * *

The armies entered on the late war at an advantage, in respect of the control of disease, over those engaged in the South African and Russo-Japanese Wars. There had been some twelve years of medical observation and research, through which additional knowledge had been gained concerning the nature of various diseases, and, though it could be said almost without exaggeration that the whole of this might have been stated on "half a sheet of note paper," it was sufficient to exert a material influence upon medical policy. But the special gift of the last years of peace to the medical services of the nations at war was a new attitude towards disease, in particular of infectious type. Attention was closely focussed on exact causes of disease and the mode of their onslaught, and this led the way to effective methods of anticipating old problems and of meeting new ones.[1] It is not the least interesting duty of the historian of army medical service to follow this scientific evolution through the years of war.

[1] An outstanding instance of the application of exact knowledge of the cause of disease to humane alleviation on a large scale was at this time to be found in Serbia, where the recent discovery of the part played by the body-louse in the natural history of typhus fever enabled the Hunter Commission to stamp out rapidly an appalling outbreak of this disease in the civil population.

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Prevention

The measures called for in an army on active service, to prevent or minimise disablement and inefficiency caused by disease, may be conveniently divided into three groups, namely, (*a*) those that are designed to minimise for the force in the field the effect of various deformities, degenerations, and disorders of function, the results of heredity and of the structural wear and tear to which man is subject; (*b*) the various provisions for counteracting adverse physical and physiological influences; (*c*) the measures against diseases due to acquired infection or infestation by living agents from the animal or vegetable world.

Prevention of disabilities under the first heading is largely a matter of selective enlistment and of those arrangements for effecting repairs—for example, by reparative operation, dental work, provision of spectacles, and so forth—which become of first-rate importance only when the supply of recruits begins to fail. In the second group—comprising accidents and other experiences which result in physical or physiological damage—such as sun-stroke, frost-bite, "trench-foot," and gassing, and illness consequential on specific food defects—responsibility for the direct action required is shared by the medical department and Quarter-master-General's branch. It is, however, with the transmissible diseases that the army organisation for the prevention of disease is chiefly concerned. Here the measures taken comprise, first (as in civil life), provision for early diagnosis and notification to proper authority, provision for removal of the case and contacts from dangerous proximity to the healthy, and search for "carriers"; second, direct action against the causes or transmitting agents of the various types of disease and against the conditions which favour such transmission; third, preventive inoculation.

Common to all three are the various agencies which promote "health"—balanced and suitable diet, clothing, rest, warmth, and other factors in the promotion of physical and psychical well-being and morale.

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Treatment in these volumes

The description given from time to time of the prevention of disease in the A.I.F. will be related to various diseases or disease groups in accordance with the mode of their onslaught known or conjectured; in particular, in the class of "transmissible" diseases it will be related to the nature of the causative organism of the disease, its mode of transmission and its biological relation to the human host.

To assist the reader in regarding these diseases from the point of view of their prevention, there has in these pages been adopted, in connection with statistics of disease and disability, a simple classification to accord with the grouping under which the preventive measures are respectively considered. While it is recognised that such a system cannot be exact till the precise method of transmission of all infectious disease is understood—and that it must be in some degree vitiated by the fact that certain diseases have several and overlapping aetiological features—the forcing into notice of gaps in knowledge is itself an incentive to further research. Moreover, it is found in practice that a special immediate cause is characteristic of the great majority of the diseases that are of importance in an army on active service.

Grouped in accordance with aetiology, all "infectious" and transmissible diseases may be included in the following chief classes:—

1. Gastro-intestinal infections and infestations.
2. Inspiratory and local naso-pharyngeal infections.
3. Tubercular infection.
4. The venereal contagions.
5. Septic infections, local and general (excluding wound infections).
6. Certain specific infections, local or general, through the skin or mucous membrane.
7. Wound infections and intoxications.
8. Diseases having special and specific modes of transmission (including those with additional animal hosts, insect or other).
9. External parasitic infestations.
10. Diseases of uncertain aetiology.

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Although the policy for the prevention of these diseases must be incidentally discussed—for indeed among the primary duties of the medical service laid down in *Field Service Regulations*,[2] the prevention of disease is recognised as being perhaps the most important—it must be remembered that in this domain the part played by the Australian army medical service in the A.I.F. was almost entirely executive. Experts in sanitary science, tropical disease, and bacteriology had, it is true, enlisted in the A.A.M.C., but (in the absence of other opportunity) they had done so as regimental and ambulance officers.[3] It was taken for granted that responsibility for policy would rest with the British service, and throughout the war the Australian Imperial Force in great measure stood or fell by this arrangement.[4]

Policy decided by British

The disease environment into which the A.I.F. entered, and in which the whole force lived during 1915—and the light horse throughout the war—was typically Eastern, its salient features being the variety and potentialities of the transmissible diseases, the hygienic depravity of a considerable section of the people, and the success of organised sanitary measures.

Conditions in Egypt, 1915

The "Annual Statistical Report for 1915" by the Director-General of the Department of Public Health in Egypt shows that a great variety of insect-borne diseases were general, both those biologically shared by man with lower forms of life and mutually transmitted—bilharzia, malaria, filaria, sand-fly fever, and so forth—and also those in which the disease organism makes use of insect or other animal carriers to effect a mechanical emigration, more or less elaborately accomplished, from man to man—the entericas, typhus fever, relapsing fever (louse-borne), plague, Malta fever, and, in noisome and horrible universality, infective ophthalmias. Many of these were fly-borne: since the days of the "Pharaoh that knew not Joseph" Egypt has been a

[2] The preservation of the health of the troops; the professional treatment and care of sick and wounded; the replenishment of surgical and medical equipment; and the evacuation of sick and wounded.

[3] In the British Army the same thing was happening. Thus Captain H. S. Ranken, V.C., a bacteriologist of great promise, died of wounds as a regimental medical officer in the retreat from Mons. As the war progressed, these men were put to their special work.

[4] The exceptional situation in regard to preventive inoculation has been noted (*pp. 26-27*).

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stronghold of Beelzebub. Dysentery, both amœbic and bacillary, was widespread. Contagious diseases, begotten of social promiscuity or low standards of cleanliness, were general. Variola of malignant type was endemic, as also were various forms of infective jaundice.

In addition to the various special diseases, most of the ordinary infections of temperate zones were fairly prevalent. Measles often proved fatal. On the other hand it was learned by the Australian physicians, on the authority of the Dean of the Cairo Medical School, that pneumonia was not prevalent in Egypt, and that influenza, though it occurred, was uncommon.

Onset of sickness

The A.I.F. had been diverted from England to Egypt in order to avoid an excessive sick rate, particularly from respiratory disease. In winter, indeed, Egypt is a health resort for Europe. The general health of the troops was at first good, but within three weeks the hospital accommodation was being taxed to the utmost, and training of medical units and regimental establishments was entirely interrupted in order to deal with sickness. In February the senior physicians of both No. 1 and No. 2 Australian General Hospitals expressed their grave concern at the amount of serious sickness in the camps, and in March General Bridges reported to the Commonwealth Government that his first reinforcements of ten per cent had been entirely absorbed in repairing sick wastage and the second had been drawn upon.

Inspiratory Disease

The monthly admission rate per thousand to hospital (including field ambulance) was in January 65, rising to 94 in February, and dropping again in March to 76.[5] Under the circumstances such an incidence of disease was unexpected. Apart from the danger of venereal contagion, warning from the Egyptian Command had been against gastro-intestinal infection. It was not, however, from without the A.I.F., but from within, that the attack came. The inspiratory infections that had accompanied the troops from camp life in Australia to the transports broke into conflagration at innumerable points. At the same time the comparative freedom from

[5] *See Graph No. 5, facing p. 466.* As a basis of comparison it may be noted that for troops in the field it is laid down (*R.A.M.C. Training, 1925, para. 379, p. 145*) that a daily average of 0.3 per cent (90 per 1,000 per month) will be evacuated from sickness and fighting (apart from heavy engagements).

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venereal disease due to the restrictions of shipboard was followed by an outbreak which brought serious and far-reaching consequences and introduced the medical service to its most difficult problem in the war.

In the matter of inspiratory infections the conditions of war are peculiar. "In peace and civilized conditions the spread of infection from man to man is restricted by the fact that the population is partitioned up into separate rooms and houses. . . . In war all this structural arrangement is swept away."[6] It was during the first four months in Egypt that the peculiar dominance of inspiratory and naso-pharyngeal infections in camp life was impressed on the Australian force with startling suddenness. By far the greater portion of admissions to hospital for transmissible diseases were from the group in which infection depends on close respiratory association. Except for the addition of venereal disease and "rheumatism," the experience of the voyage was exactly reproduced. "Influenza" ran through the camp unimpeded. Measles—elevated by reason of its exanthem to the dignity of isolation—was little less successful in its career. Outbreaks of the ubiquitous bronchitic, tonsillar,[7] and local pharyngeal infections occurred at the same time with their more serious congeners, though in what (if any) relation other than seasonal, it is difficult to say.

Lobar Pneumonia

Most important, as an epizootic imposed on the others but definitely specific, lobar pneumonia appeared, and, as on the transports, sometimes assumed local epidemic features very closely resembling those of cerebro-spinal fever. Neither the latter disease nor mumps achieved during this period the epidemicity which later made them notorious.

The lobar pneumonia was typical, but the mortality relatively low. "Pneumonia" was responsible for 18 per cent of the total inspiratory group, and for 44 out of the 69 total deaths from disease till the beginning of April. Of these an

[6] Sir Almroth Wright, in a special letter to *The Times*, 28 Sept., 1914.

[7] In the preamble to the memorandum issued in 1918 by the Medical Research Committee in connection with the medical statistics of the war, the suggestion is made by the late Dr. Brownlee that such statistics might further the study of diseases, "such as tonsillitis, as to which there is at present almost complete ignorance of the conditions which determine their spread."

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uncertain proportion were cases of broncho-pneumonia, a not uncommon complication of measles and "influenza," and which at this time presented somewhat unusual features.[8]

"Influenza"

As throughout the war under almost all conditions, the "disease" diagnosed as "influenza" headed the list. Whether it was related in any way to the pandemic that in 1918 "put up a record" appears doubtful.[9]

The clinical features of the condition, as seen at this time, are described by the senior physician to No. 2 A.G.H.[10]

In addition to the clinical symptoms, an extreme amount of inflammation of the tonsils and pharynx occurred. The diagnosis was clinical, not bacteriological, but to me quite satisfactory. The special features, tonsilitis, pharyngitis, and bronchitis, or bronchial irritation with frequent laryngitis, were probably due to the ubiquitous dust in which the men spent the most of their lives.

In 121 cases treated in one ward at No. 2 A.G.H. for "influenza," the following complications were seen: 12 of bronchitis, 4 broncho-pneumonia, several cases of hæmorrhage from the lung, 1 pulmonary abscess, and 6 empyemas.

Inquiry held

The cause of the outbreak of disease, particularly of pneumonia, was the subject of an inquiry. It resolved itself into the old question of the relative importance of infection and of conditions tending

[8] For an account of the outbreak, *see The Medical Journal of Australia*, 20 Nov., 1915. Post-mortem findings (to quote from a report by the bacteriologist to No. 1 A.G.H.) disclosed the fact that the most usual, or at any rate the most fatal, complication was a condition that may best be termed acute polyserositis, affecting pericardium and pleura, and occasionally peritoneum. These membranes, acutely congested in early stages, rapidly became coated with thick yellow shaggy lymph; there was usually a little semipurulent fluid, which, when tapped by the exploring needle, made one think that an ordinary empyema was the condition. The lung sometimes showed lobar, or lobular, consolidation, but was nearly always less affected than its pleura. Frequently there was just basal engorgement or slight consolidation and peptonisation, such as is met with in the terminal pneumonias of old people or after debilitating diseases. The clinical course suggested a severe toxæmia with marked lung involvement. The only organism obtained from the exudates was the pneumococcus, though a mixed infection was frequent in cultures from the bronchi. A great feature of the bacteriology at this period was the frequent occurrence, either in pure culture or mixed with the more usual organisms, of the B. Friedlander in infections of the respiratory passages.

[9] For a fine appreciation of the subject, see the British *Medical History of the War—Diseases of the War, Vol. I.* The notorious inexactitude in the use of the term "influenza" in peace, which was continued in the war, has resulted in a confusion far from creditable to the medical profession. It is unfortunate that medical science has not been able to fight its way clear of the demoralising obscurantism brought about by ignorance of the real nature of this "disease."

[10] Lieut.-Col. J. W. Springthorpe.

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to lower resistance; opinions were (and remained) divided. The views of the physicians of the A.I.F.[11] were summarised as follows:—

That the prevalence of the disease is due to:—

1. The troops having brought it, or the germs of the disease, with them from Australia.
2. Their close contact in tent life.
3. The extremes of heat and cold in the 24 hours.
4. Exhaustion from overwork at a time when they were not thoroughly fit, suffering from a feverish cold, for instance.
5. The exhaustion resulting from unfitness due to dissipation.
6. Exposure at night in trams and motors, while insufficiently clad.
7. The dusty atmosphere in which they lived and worked.

The senior physician to No. 2 General Hospital insisted strongly that the predisposing influence in pneumonia was fatigue, basing his opinion on the small incidence among officers (who did not carry packs).

Increase through non-isolation

There was certainly at first no little crowding in tents, and the troops of the 1st Australian Division were worked for a time to exhaustion. As regards the removal of sources of contagion, the arrival of so large a force brought about at first a very unusual situation. The accommodation in Egypt was inadequate, and the conditions of the A.I.F. were at first those of camp or semi-garrison life, but without garrison or camp hospitals, and lacking the line-of-communication units proper to the field. The force being closely packed and self-contained within its divisional organisation, much disease was at first treated in the lines. In the 1st Division this congestion and retention of the infected in close contact with the clean was certainly a factor in the sick rate.

Venereal Disease

Next in point of numbers to the whole group of respiratory infections, and of greater importance from both a military and a national point of view, was the outbreak of the venereal contagions which during the four months incapacitated over 2,000 men and sent 3 per cent of the force "constantly sick." Though the outbreak came as a surprise to the military command, it was not unforeseen by medical officers who had studied the history of armies placed in a similar

[11] Quoted from a report by the senior physician to No. 1 A.G.H., Lieut.-Col. H. C. Maudsley.

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situation.[12] Before the war, by reason of the usual mode of transmission of the causative organisms, the venereal contagions were not regarded in the same light as other infections. Even the official health departments took cognizance of them only under a veil of secrecy. This attitude was at first reflected in the military sphere. Regimental medical officers were unofficially permitted to give instruction, but, in view of possible public feeling, official sanction of provision for personal prophylaxis was refused. Except for the individual efforts of enthusiasts, little was done. Some instruction was given on the voyage, and a general warning to the troops was issued by the Egyptian Command and circulated on their arrival.

For political reasons, the spending of Australian money in Cairo was encouraged, and leave was liberal. Within a fortnight a startling outburst of venereal disease occurred. It soon became obvious that the matter required immediate attention and strong measures. The moral and patriotic aspects were forcefully put before the troops in a manly and straightforward letter by the Corps Commander, and with his approval incoming transports were met by the registrar of No. 1 General Hospital for personal instruction. Entertainments in camp were fostered. On the other side the unofficial efforts of various regimental medical officers were given official sanction, and opportunity was afforded to those determined on promiscuous intercourse to lessen by personal prophylaxis the chances of serious consequences to the force and to themselves. At the end of January, at the instance of the General Officer Commanding the Force in Egypt to the Australian Government, pay was stopped to men with venereal disease while absent from duty. In addition, the drawing of pay by Australian soldiers was limited to two shillings per day.

Effort to combat

The outbreak was as short as it was sharp. Of the two chief classes of susceptibles, the uninitiated youths were scared or warned; most of the incorrigibles had by now been infected. The incidence in February was much smaller, and

[12] It is not without interest that in the Canadian force, camped in England, inspiratory infections and venereal disease stood in the same relation to the total sick rate as in the Australian force in Egypt.

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by March was inconsiderable. The secondary consequences of the outbreak were far-reaching and are dealt with elsewhere.[18] From the clinical point of view the outbreak was of interest through the very large proportion and virulent character of chancroid, complicated in most cases by large and very intractable buboes.

Gastro-intestinal Disease slight, but present

The warnings of the Egyptian Command and the sanitation of the camps in Egypt were concerned almost entirely with the prevention of gastro-intestinal infections—the enteric group and infective fluxes. Here comes into view a considerable gap in aetiological knowledge; the significance, namely, of the various forms of "diarrhœa." In his despatch of February 27th General Bridges records as a "gratifying feature the small amount of diarrhœal disease and complete absence of enteric fever." Certainly there was an absence of cases of severe diarrhœa or of "dysentery" in any numbers sufficient to cause administrative concern. But cases of slight diarrhœa of a suggestive type did occur in considerable numbers; these were treated chiefly in the lines. "At Mena," a regimental medical officer (later senior bacteriologist A.I.F.) has recorded, "there were numerous cases of diarrhœa on sick parade. At the time we thought the sand in the food was the common cause, and it may have been, . . . but afterwards I thought very likely some of the diarrhœa was true dysentery, both amœbic and bacillary." The amœbic form first appears in mild recurring attacks of diarrhœa, many cases remaining "carriers." Bacillary dysentery may also be mild. The conditions of camp sanitation were certainly such as to suggest that these mild and sporadic infections were received from the reservoir of disease always provided by the natives.

Hardly a whisper of the storm of which the enteric infections were to be the centre was perceptible. Up till the end of March the number of cases of "typhoid" treated in hospitals totalled sixteen, and there were only two paratyphoids (reported by the D.M.S., A.I.F., to his Government in April as "cases of an allied disease").

[18] *See p. 188.*

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Apart from inspiratory infections and venereal contagions, the incidence of transmissible disease was insignificant. Three cases of typhus occurred, and five of virulent small-pox (two from cross-infection within the field ambulance), which compelled re-vaccination of the force. Scabies was very infrequent. Middle-ear disease as a sequel to the pharyngeal infections was a feature of the sick parades.

Typhus, Small-pox, etc.

Of non-transmissible disease the incidence was in the circumstances truly surprising, the greater portion consisting of deformities inherited or acquired and cases of constitutional disease which had been passed in Australia as "fit." These have already been mentioned. It is of interest, however, that at No. 2 General Hospital no less than seventy-two men were operated on for hernia, and large numbers for varicocele, varicose veins, and hydrocele.

Deformities

At this early stage in the history of the force the treatment of dental disease and defects—later to loom among the major problems of the medical service—became prominent. A soldier is not freed by active service from the operation of the factors that combine to produce in civilised man infections of teeth and gums which, without constant attention, seriously diminish his efficiency, and which appear to be of so obscure a kind or so inevitable as to be still unamenable to "preventive medicine." The health of a civil community is indeed greatly influenced by the work of the dental profession, and the need of it was quickly felt in the army. Within a very short time of the arrival of the force in Egypt large numbers of men began to present at the sick parades for dental treatment. For this, however, no provision had been made, and the dentists of Cairo, qualified and unqualified, were thronged. In the British Army at this time, as in the A.I.F., facilities for dental treatment in the field were confined to the R.M.O. with his four pairs of dental forceps. The New Zealand Government had had the prescience to include in its force five commissioned dental officers, but curiously enough had failed to provide equipment or to enlist mechanics.

Dental provision inadequate

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In the A.I.F., however, fostered by the medical service the germ of a dental service in the field was evolving in the form of unofficial co-operation between combatant and medical officers on the one hand and enlisted members of the dental profession on the other. In the 1st Brigade (for example) a well-qualified dentist had enlisted as orderly lance-corporal to the R.M.O. 1st Battalion and, with his personal equipment and the aid of "Red Cross" and regimental funds, began systematic dental work on board the transport, on which 60 per cent of the troops were found to require dental treatment in some form. At Mena this work was continued in a bell tent. Similar efforts to meet the situation were made among the light horse. When the available pay of the troops was cut down to 2s. per day, recourse to civilian dentists became impossible and the need for action was insistent. The A.D.M.S., 1st Australian Division, already strongly convinced of the importance and far-reaching nature of the problem, conferred with his R.M.O's and took the matter in hand. Permission to use unallotted pay was obtained, and the dental work being done in the lines was also officially recognised and its scope extended. At the request of his A.D.M.S., General Bridges cabled to Australia recommending the appointment to No. 2 Australian General Hospital, with rank of honorary lieutenant, of the dentist referred to above.[14] This was refused, but with the consent of the A.D.M.S., New Zealand Expeditionary Force, a New Zealand dental officer was attached. Through lack of equipment, however, this officer could do only surgical work and stoppings. The dental clinic in the 1st Battalion, during the training period, turned out over 100 dentures, while a considerable number of men were made fit for active service. On the eve of the departure of the force for the front General Bridges urged on the Defence Department reconsideration of its decision. "I believe," he said in his last despatch, "that the service of a dentist in the field would make for efficiency and economy as an alternative to the transfer of men to the base for treatment." The further developments of this important matter will be narrated in due course.

Provisional arrangements

[14] A. M. McIntosh.

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End of training: Health good

The health of the light horse and of the artillery was very decidedly better than that of the infantry, thanks to better housing and, almost certainly, to the less severe conditions of training. By the end of March, however, when the call came, the whole Australian force, hard from its training on the desert sands, was in great measure fit and free from disease.

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CHAPTER VI

THE GALLIPOLI CAMPAIGN: STRATEGIC PREPARATIONS

THE sudden order for the A. & N.Z. Army Corps to sail to the front was to find the force, from a medical point of view, only partly prepared. The field formations had their full medical establishment, but the Australian Government had not been called on to furnish a full quota of corresponding base medical units, and had naturally assumed that the British Government would furnish them. When, however, the Australian force landed in Egypt, which became its base, the British staff there did not recognise the need for this provision. Measures early suggested by the D.M.S., A.I.F., which might have filled part of this deficiency, were not carried out, partly through his being overruled or ignored by the High Commissioner in London or by the D.M.S. for Egypt, and partly through the non-agreement of the C.G.S. in Melbourne with his requests for hospital ships. Thus, at the last moment, provision at the base was to become in no small degree dependent on emergency measures undertaken largely by No. 1 Australian General Hospital.

* * *

"Brigade" training had been completed in the 1st Australian Division by the middle of February. Combined brigade and divisional movements had not commenced when training was interrupted by a series of events whereby the force, hitherto directed westwards, became involved in a subsidiary storm now developing in the East.

New theatre of War—3rd Brigade moves

On February 24th the field ambulances of the 1st Division were inspected by the D.M.S. for India[1] (acting under special instruction from the War Office), who declared himself "pleased with the ambulances and considered they were fit for immediate service." On the same day No. 2 General Hospital received instructions to "pack up, and prepare to

[1] Surgeon-General Babtie.

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evacuate all cases": on the 26th the Australian Clearing Hospital and No. 1 Stationary Hospital also received orders to prepare for an immediate move. On February 27th all units of the 1st Australian Division were instructed to hold themselves in readiness to embark at short notice, and the 3rd Brigade was detailed to move at once. The headquarters section of No. 1 Stationary Hospital rejoined from Ismailia, and the unit, having evacuated its patients to No. 1 General, packed up and entrained, with its 115 tons of equipment, within twenty-four hours. On March 2nd it, together with the Clearing Hospital, moved to Alexandria and with the 3rd Infantry Brigade formed a "Detached Force" of 4,931 troops, which on March 3rd embarked for "an unknown destination." Instructed by the D.M.S. for Egypt that he would be required to "form an Advanced Dépôt of Medical Stores at the Overseas Base," the commanding officer of the Clearing Hospital procured extra medical and surgical supplies. Both units obtained Red Cross grants and stores from the D.M.S., A.I.F.

These events were related to a phase of the world war which is of great military interest, namely, the effort by the Allies to exploit in the East the possibilities of an open flank, by now closed in the West. They belonged to the penultimate stage of the disastrously drawn out debate which led to the Dardanelles Campaign.

A brief outline of the various phases in the evolution of that project must needs be given, since most of the medical difficulties of the campaign, as well as its military failure, are traceable to, and might have been foretold from, the manner of its initiation. At the beginning of the year the decisive respite secured by the Allies on the Marne, and the safeguarding of the ocean trade routes, had left Great Britain—urged thereto by the "old instinct" of her "world-wide maritime empire"[2]—free to exploit the strategic possibilities offered by command of the sea. The result was the decision to endeavour, in conjunction with France, to offset the German pressure on Russia and the Turkish threat to Egypt by forcing the Dardanelles. This was to be done by the navy, with the object of effecting a junction of Allied

[2] *Naval Operations*, by Sir Julian Corbett, *Vol. II, p. 65.*

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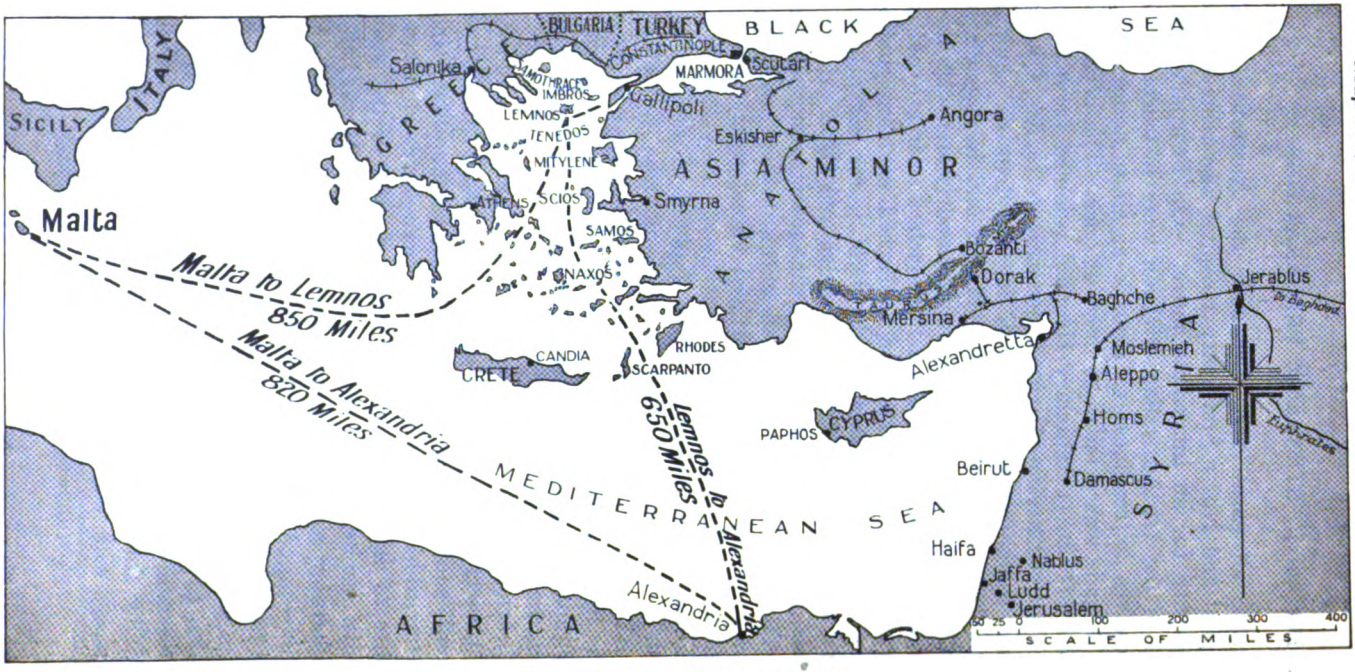

THE EASTERN MEDITERRANEAN

Map No. 2

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troops with those of Russia in the neighbourhood of the Black Sea. The navy began preparations at the end of January, and on February 6th two battalions of the Royal Marine Light Infantry were sent to the Dardanelles "to serve as a garrison for the (naval) base and for any small landing operations of a temporary nature." On February 19th took place the first naval attack on the outer forts, and its unsatisfactory results vindicated the view held by the Admiralty that military co-operation in some form would be necessary in forcing the straits. In consequence of the failure of the purely naval attempt General Birdwood was instructed by Lord Kitchener to report on the situation at the Dardanelles and to advise as to the military co-operation required. Thereupon a small military force was hastily assembled in the Levant.

Landed at Lemnos

In the first week in March the "Detached Force" of the A. & N.Z. Army Corps was despatched to a naval base which had been formed, with the consent of Greece, on the island of Lemnos (then still claimed by Turkey, though held since the Balkan War by Greece). The Royal Naval Division arrived early in March. These troops constituted a force which, though not a fully organised expedition, was termed the "British Expeditionary Force. Mediterranean." On March 15th No. 1 Australian Stationary Hospital was established on shore to serve its troops, both British and Australian.

Already the Dardanelles venture was passing from a diversion to a definite alternative effort in another theatre of war. On March 5th-8th occurred the second phase of the naval operations—the first attack on The Narrows—and its adverse result, together with General Birdwood's report, helped to confirm the momentous decision which the War Council had already arrived at on February 16th, when it was resolved to send a much more powerful military force, including the 29th British Division, to be in readiness for use if required at the Dardanelles. This decision brought about the formation of a "Mediterranean Expeditionary Force" ("M.E.F."), which included the Australian and New Zealand Army Corps and also the Royal Naval Division. Further account of this is for the present deferred.

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At the same time with the despatch of the Detached Force General Birdwood issued on March 2nd confidential orders "for the organisation for the A. & N.Z. Army Corps for service out of Egypt"; but until March 22nd the A.I.F. (less the Detached Force) remained under the undivided control of the "G.O.C. the Force in Egypt," and Surgeon-General Ford now became responsible on the medical side for the general preparation of the Australian force for active operations. On March 4th No. 2 Stationary Hospital was ordered to prepare for a move overseas: by March 6th the closing of this unit and of No. 2 General Hospital was complete, some 300 tons of heavy equipment having been stored at Cairo and Alexandria ready for shipment. Pending resolution, however, of the suspense concerning the Dardanelles, both remained at Mena. Situated in the camping and training area now rapidly growing round Zeitoun and Heliopolis, No. 1 General Hospital had already become the centre of medical activities.

2 A.G.H. and 2 A.S.H. warned

These and other preparations for the expedition, in which at first Australian troops constituted almost half the entire strength, opened up in Egypt, as in the Mediterranean Expeditionary Force, the whole question of Australia's concern in the medical arrangements for her force. The troops in question—the 1st Australian Division and the 4th infantry and three light horse brigades—included the medical units of their formations; but outside these there would be required, on the lines of communication and at the base, medical provision (*a*) for accommodation and treatment of sick and wounded, (*b*) for the return to the front of those who recovered quickly (including provision for their accommodation and training from the time they should be fit enough to bear arms again), (*c*) for disposal to home or elsewhere of cases whose recovery was doubtful or would be long delayed, and (*d*) for stores and organisation for the reception and distribution of medical supplies. Originally none of this provision was to have been made by Australia, the War Office implicitly undertaking the whole of it; and, when subsequently

Australia's medical provision

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the Australian Government had accepted the suggestion[3] of the British Government and offered to supply some units of this category, no arrangement had been arrived at as to how far Australia and how far Great Britain should be responsible. The position apparently was that anything that the Commonwealth contributed was welcome—Great Britain would make good the rest. This absence of definition of the obligations of Australia in the matter of medical arrangements was unfortunate, for sentiment, however generous and reciprocal, cannot take the place of a clear, business-like understanding.

On the medical side organisation had, it is true, extended much further than on the military. Apart from its medical service, the Australian Imperial Force included in its composition only a few units—such as field butchery and field bakery, ordnance, and dépôt units of supply—that did not come within the category of front line troops. The only "A.I.F." officer appointed, besides the General Officer Commanding, was the Director of Medical Services. The larger provision was chiefly in connection with the humanitarian side of medical responsibility, regard for which dominated the attitude of the Australian Government and people towards their medical service. In respect of "prevention of disease" and "replacement of medical stores," the service had been organised on a strictly divisional basis, beyond which it had neither responsibility nor opportunity to influence events. But the Minister for Defence had promised that Australian sick and wounded would receive the best medical and nursing service possible, and to that extent a general obligation rested on the responsible officers of the A.I.F. The Australian staff, on the other hand, in its original conception of the force, had taken for granted that, whatever special action might be taken by Australia for humane alleviation during the war, from the military point of view all arrangements for the treatment and disposal of Australian sick and wounded, after leaving the front, would be made by the War Office, Australia paying for such services. With the raising, equipping, and despatch (at the suggestion of the War Office) of the line-of-communication and base

(a) Hospital provision—humane and military motives

[3] *See pp. 27 and 88.*

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medical units laid down in war establishment for an infantry division, this position had been modified, and the diversion of these units to Egypt definitely associated an Australian base organisation with the A.I.F. But the units hitherto raised were those laid down for a force of 20,000, whereas the troops already despatched and about to take part in a most perilous adventure 8,000 miles from the home base numbered nearly 40,000, while the equivalent of another division was already preparing to leave Australia, for which no base or line-of-communication units were being raised. The Australian hospitals, therefore, did not—and were not intended to—constitute a full hospital provision for the force.

Discussion of further provision

Some discussion relevant to this vital matter had indeed taken place, and certain decisions of considerable importance and significance had been reached. At an interview on January 23rd between the D.G.A.M.S. (Surgeon-General Keogh) and Surgeon-General Williams, while on his visit to England, the matter of a further contribution of Australian medical personnel had been discussed. Two important suggestions came of this. The first was that a number of Australian medical officers and trained nurses should be enrolled for service in the Royal Army Medical Corps and the Queen Alexandra's Imperial Military Nursing Service (Q.A.I.M.N.S.). On February 6th the Defence Department was advised—"War Office desire to engage 100 medical men as officers R.A.M.C. from Australia." On the recommendation of the acting D.G.M.S. in Australia action was at once taken for the raising and despatch of 100 medical officers and 150 nurses. A second result of the conversation was a memorandum from the D.M.S., A.I.F., to the D.G.A.M.S., on January 27th, asking him "that a request be obtained" from the Secretary of State for the Colonies (*i.e.*, that he should ask Australia) for "one field ambulance with motor ambulance transport, also one general hospital of 520 beds, or, if this is not available, two stationary hospitals of 200 beds each." A question by the War Office as to the equipment which these units should bring with them from Australia delayed immediate action: meanwhile the D.M.S., A.I.F., left for Egypt on January 28th, and subsequently the High

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Commissioner (for reasons that are obscure) held the matter up without informing him of the fact. On February 10th the D.G.A.M.S., in a further note addressed to General Williams through the High Commissioner, suggested that a general hospital on the new war establishment of 1,040 beds would be welcome; he at the same time stated that he would welcome a further offer of qualified medical men. This suggestion again was not referred to Australia. On March 2nd and again on the 18th the D.M.S., A.I.F., cabled from Egypt to the High Commissioner asking the position in regard to this hospital. On the 27th he was answered by the High Commissioner that the matter was "still under consideration."

Feb. 10. High Commissioner fails to inform D.M.S., A.I.F.

No communication on the matter, however, had as yet reached Australia. The change of destination to Egypt had entailed a complete change in the medical situation, and this, together with the vagueness of any understanding as to the medical arrangements for the A.I.F., made difficult any prevision by the acting D.G.M.S. in Australia. Moreover, the Defence Department was by this time raising the medical officers and nurses for service in the British Army. On March 30th an unofficial cable from the Defence Department to the D.G.A.M.S., at the War Office—sent at the request of the acting D.G.M.S. in Australia "in order to give that officer an idea of the resources" of Australia—after notifying the departure of the first fifty medical officers for the R.A.M.C. and nurses for the Q.A.I.M.N.S., continued:

> Many professionally senior men willing (to go) if assured of responsible hospital positions. Command not desired. Hospital units without marquees easily raised.

The result was a very urgent cable on April 8th from the High Commissioner (now alive to the serious results of his own procrastination) which informed the Defence Department that personnel on the lines suggested, sufficient for a 1,040-bed hospital, would be very acceptable, gave details of the qualifications of the staff necessary, and added that they should leave at the earliest possible moment. The D.M.S., A.I.F., was informed of this on April 10th. In the

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meantime, however, the onrush of events had necessitated preparations for the disposal of Australian casualties at the expeditionary bases on different, and very inferior, lines, presently to be described.

Convalescent Depot refused

The need for some organised system to accommodate convalescents, so as to relieve the hospitals had been urged by both physicians and surgeons, and with the prospect of a rapid move the matter became urgent. On March 2nd the D.M.S., A.I.F., who had asked that a "convalescent dépôt"[4] should be included in the Australian L. of C. units when raised, cabled through the High Commissioner that personnel for two convalescent dépôts for the field were urgently required. But the Chief of General Staff in Melbourne, actuated by the justifiable belief that the War Office would make this provision, advised the Minister for Defence that "when our units go to the front they will be part of organised armies for which Convalescent and Base Dépôts will be provided," and that "it would be presumption to send them." The Australian Department of Defence accordingly replied that "new units will be formed only on the advice or request of the Imperial Government": and thus the question of a convalescent dépôt for Australian troops was indefinitely postponed.

(b) Return to duty—base and training depots

With the medical business of convalescence is closely bound up the military business of return to duty in repair of wastage, but in 1915 the control of this process remained outside the staff of the A.I.F. There is, however, evidence that from the outset of his administrative career as A.D.M.S. of the 1st Australian Division, Colonel Howse felt as strongly on the subject of "return to duty" as he did on the fitness of combatant reinforcements, and that he had not hesitated at this time even to exceed his province in his insistence that "return" was an A.I.F. responsibility, and primarily a medical one. He saw the medical service as a strategic element in the military machine rather

[4] The organisation in the British Army to serve the provision of "convalescents in an expeditionary force" (introduced only in 1914) was contained in an establishment of 2 medical officers and four others, R.A.M.C. By *Field Service Regulations* a convalescent dépôt was "intended for officers and men who require no further active medical or surgical treatment and who, although not yet fit for duty, are likely to become so in a reasonable time. They are under the protection of the Geneva Convention."

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than as a humane appendage. From so early a date had there been conceived in the medical service of the A.I.F. a policy that became an important feature of its later history—that of enforcing the highest standard of fitness in "effectives."

Under the organisation existing in the British Army a sick or wounded man of an expeditionary force would ultimately pass from convalescence back to the control of the combatant branch in an "overseas base dépôt" at the expeditionary base. Provision for this dépôt, though not for control of the policy by which men would pass through it, was now made within the A.I.F. By General Birdwood's order on March 2nd a "Corps Combined Infantry and General Overseas Base Dépôt" was formed to accompany the divisions to the prospective overseas expeditionary base, its purpose being to hold reinforcements and discharged convalescents for replacement of wastage, and to take charge of "base kits." In view of the existence in the A.I.F. of units outside the army corps—in particular the Australian general hospitals and light horse—and of the periodical arrival from Australia of reinforcements partly trained, provision was also made for a special "temporary base dépôt," to remain in Egypt "to deal with units left behind or arriving in Egypt." To this also "all unfit men or men for discharge will be transferred" (from hospital).

At the same time a definite establishment was laid down for the Australian Intermediate Base Dépôt, including headquarters and the six subsections (records, finance, ordnance, medical, remounts, and base details), and a permanent staff was appointed to all except the medical. The Base Details Camp at Abbassia was now of considerable size and was serving, in a haphazard and very imperfect fashion, as a "convalescent camp," where a medical officer detailed from No. 1 General Hospital attended, as best he might, with such casual help as he could obtain, to the convalescents, invalids, and reinforcements, who now numbered some four to five thousand. It was arranged that this base details subsection should serve as the "temporary" base dépôt which, it soon became obvious, was likely to be permanent. Preparation had begun for organising "training battalions," when on March 23rd the War Office cabled to headquarters of the

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Force in Egypt that a British officer, Major-General J. Spens, had been appointed to organise and command "a training dépôt for the colonial contingents."

(c) Invaliding home or to England

The question of the disposal of Australian invalids (that is, of those who were unlikely to recover within a stated time) had already been brought up by the G.O.C. for Egypt. On February 18th the High Commissioner in London cabled to the Defence Department that the War Office had been asked by General Maxwell "whether the Government of Australia had considered the question of hospital ships between Australia and Egypt." He himself suggested that "arrangements be made to ship those (men) already unfit in Egypt on returning second contingent transports," adding, however, that "the War Office strongly advise consideration of provision of Hospital Ships for future use." In Australia this matter (which had not hitherto been considered) was referred to the Chief of the General Staff, who by minute put to the Minister for Defence the question—

Hospital ships rejected—transports adopted

> As empty transports will be returning every month, would it not be better to temporarily erect extra cots in them, rather than to provide hospital ships?

The acting D.G.M.S. having accepted the suggestion, it was on February 23rd cabled to the War Office, together with a request for information as to the probable condition of health of the invalids so carried. The D.M.S., A.I.F., who had been made aware by the High Commissioner of the correspondence on February 23rd, cabled in support of the policy of return of invalids by "better-class transports fitted for sick with adequate personnel and nurses," but urged that "immediate provision" was necessary for two hospital ships. Here, however, the matter for some time rested. On March 9th, on the recommendation of the acting D.G.M.S., the Defence Department decided to allow two medical officers, ten nurses, and fourteen other ranks of the A.A.M.C. per transport, and to increase the establishment of Nos. 1 and 2 General Hospitals so that "all members of the hospital should take transport duty in rotation." The scheme was based on the expectation of a regular supply of suitable transports; it

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was in fact proposed by the acting D.G.M.S. to fit out, in part, certain transports for a regular service. In this, as in many anticipations concerning sea-transport of sick and wounded, reckoning was made without the navy and the vicissitudes of war. On March 18th, as will be seen later, General Maxwell was again to raise the question.

Larger A.A.M.C. drafts needed

The necessity of finding personnel for invaliding on transports brought to a head the already existing inadequacy of medical reinforcements. During March, transports bringing the rest of the second and third reinforcements for the A.I.F. arrived intermittently without convoy, and each of them carried one or two medical officers for the voyage. On arrival these were sent by the D.M.S. for the Force in Egypt to No. 1 General Hospital. Normal medical reinforcements "other ranks," who arrived fairly regularly at the rate of two and a half per cent monthly, went to the Base Details Camp at Abbassia. Already, however, the medical personnel available in the hospitals had been found inadequate for unexpected emergencies and the rapidly growing requirements. In view of this and of the additional needs for the scheme of invaliding, the D.M.S., A.I.F., on March 15th cabled for fifty rank and file "special reinforcements . . . for expansion and special service demands."

(d) Medical stores

The preparations for departure to the front had also given rise to the question whether dépôts of medical stores should not be formed in the A.I.F. The force provided by Australia was to be "ready to take the field," and had been equipped in accordance with British mobilisation store tables. The first and fundamental medical supply is the "first field dressing," carried, as part of his equipment, by every officer and man, and "issued" from "Ordnance" immediately before proceeding "to the front." These supplies were now issued under instructions of General Ford, who circularised all Australian and New Zealand formations on the subject of first field-dressings[6]

[6] Regimental medical officers in every formation complained of the poor quality of those brought from Australia, which the A.D.M.S., 1st Australian Division, refused to distribute, and which were made the subject of a special report from the senior surgeon of No. 1 A.G.H. 2,500 British dressings were obtained by the A.D.M.S. of the 1st Division, but, on account of shortage in Egypt, many of the poor type were taken, to be cursed on Gallipoli.

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and regimental equipment. On February 26th the D.M.S., A.I.F., issued to all line-of-communication ("L. of C.") and "Base" medical units a memorandum inquiring whether, in compliance with instructions issued by him in Australia, medical equipment had been held intact for service in the field, and urging that any deficiencies should be made up without delay. Replenishments in compliance with this order were obtained partly from the British medical dépôts and partly from Australian supplies. In view of the probable employment of the Australian Imperial Force in the East the D.M.S., A.I.F., now asked, through the High Commissioner, that

> personnel for advanced and base dépôts of medical stores be sent from Australia as most urgently required. . . . Impossible to receive or distribute stores without same.

The D.M.S. for the Force in Egypt, however, to whom the matter was referred back by the High Commissioner, stated that—

> advanced and base dépôts of medical stores have been ordered from England to meet the existing conditions, and no present action is therefore necessary.

But in consequence of the uncertain position of the Australian force, and of the indecision of the D.M.S. for the Force in Egypt, Surgeon-General Williams began seriously to arrange for accumulating official and Red Cross medical stores in preparation for the campaign. On March 2nd he cabled the High Commissioner for "the drugs, surgical instruments, and dressings now stored or held by the British Red Cross Society," and, in particular, for Red Cross stores and clothing sufficient for 3,000 sick and wounded, and for 50 Thomas splints and 150 stretchers. A high-pressure sterilizer for each general hospital and 522 cases of Red Cross stores arrived on March 12th. Motor ambulance waggons were also coming back each week from England, and every transport brought assorted "reserve" or surplus supplies from Australia. The dispensary of No. 1 General Hospital had by this time become practically an Australian medical supply dépôt, to which surplus medical stores, both official and Red Cross, from transports were sent, instead of being, as heretofore, stored at Alexandria.

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While these preparations were being made at the base there took place in the field force also, in view of the possibility of a campaign in the East, certain administrative developments and general preparations which require a brief notice. The "establishment" of an army corps did not at this time include an administrative medical officer, but only a medical officer for the staff. The necessity for such an appointment had, however, been recognised in the British Army by the special appointment of a Deputy-Director of Medical Services to two of the three army corps which formed the first British Expeditionary Force to France in August, 1914 (the other corps suffered serious disadvantage through not having one). The A.D.M.S., 1st Australian Division, being convinced that such an appointment would be necessary, put the matter before the D.M.S. for the Force in Egypt and the General Officer Commanding the Australian Imperial Force. The former "agreed to the principle." On the plea that "there was no provision on establishment" the recommendation was rejected by corps headquarters, and the D.A. & Q.M.G. remained responsible for all medical arrangements. Early in March the A.D.M.S. of the New Zealand Expeditionary Force, who had acted in the same capacity for the N.Z. & A. Division, was sent to London to prepare for New Zealand wounded who should be invalided there. At the desire of General Godley—who was averse to the appointment of an Australian medical officer—Colonel Manders, A.M.S., was appointed by the War Office as A.D.M.S. to the division, with which, as D.D.M.S. for the Cairo area, he had already been closely associated.

Corps lacks D.D.M.S.

From the middle of March the preparations for service out of Egypt became focussed on a definite object. On the 12th, General Sir Ian Hamilton was appointed to the command of the Mediterranean Expeditionary Force. The medical staff for the now definitely organised expedition included Surgeon-General W. G. Birrell as Director of Medical Services, with Lieutenant-Colonel A. E. C. Keble as

C.-in-C. appointed

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"A.D.M.S. Administrative." An "A.D.M.S. Sanitary" was not appointed. On March 13th General Hamilton, without his administrative staff, left for the East.

Naval reverse

On March 18th took place the disastrous second naval attack on The Narrows: on March 22nd the landing of a large English and French military force as part of a combined operation was arranged between the naval and military commanders. Thus from the idea of a purely naval attack on the straits, the project had grown into that of a great combined naval and military campaign on the Gallipoli Peninsula, but its development had been characterised by a combination of hesitancy and haste very disastrous to medical preparations as well as to the final military result. As is pointed out by the British naval historian, throughout the evolution of the scheme there can be traced an important defect, namely, "failure to state with perfect lucidity and precision what the problem was they had to solve,"[6] its injurious effect being increased by the "imperfect machinery for bringing together the Naval and Military staffs for intimate study of combined problems."[7] Similar defects will be seen to have vitiated the medical arrangements throughout the campaign.

Lemnos base abandoned

As a base for the operations Lemnos was found to be unfitted, since the harbour, though one of the finest in Europe, was totally unequipped. The water-supply was reported inadequate; an even more disturbing condition was provided by the gales which, at this time of the year, raged with extraordinary fury. General Hamilton therefore decided on a new base, and, on the advice of his chief-of-staff and his "own hasty study of the map," selected Alexandria. "Almost incredible really, we should have to decide so tremendous an administrative problem off the reel and without any Administrative Staff."[8] The decision that Lemnos should be used only for the concentration of the assaulting troops was one of great importance to the medical arrangements.

[6] *Naval Operations*, by Sir Julian Corbett, *Vol. II, p. 178.*
[7] *Naval Operations, Vol. II, p. 175.*
[8] *Gallipoli Diary*, by Sir Ian Hamilton, *Vol. I, p. 43.*

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With the exception of the 3rd Australian Infantry Brigade and the marines, all troops then at Lemnos now sailed for Egypt. General Hamilton himself arrived on March 26th, to arrange with General Maxwell for the establishment at Alexandria of a new base of operations for the campaign and to organise his command coincidently with the drawing up of a strategic plan.

Already under the Egyptian Command preparations were in progress. The "S.M.O." for Alexandria—Colonel Beach, representing the D.M.S. for the Force in Egypt—had been made an assistant-director of medical services. There had arrived for the expedition on March 15th No. 15 British General Hospital for the Royal Naval Division, and on the 30th No. 17 for the 29th Division; both were of 1,040 beds. They were without female nursing staff. On March 28th, on the orders of the D.M.S. for Egypt, No. 15 took over buildings in Alexandria and commenced to prepare them for use as a base hospital. No. 17 remained unopened. Nos. 4 and 5 British Advanced Dépôts of Medical Stores arrived about this time. On March 28th Colonel M. J. Sexton, A.D.M.S. of the M.E.F. Base, arrived and at once concerned himself with arrangements at Alexandria, the administrative situation thus becoming very involved.

Alexandria base established

Until they embarked for Lemnos, the Australian troops allotted to the Mediterranean Expeditionary Force remained under the G.O.C. for the Force in Egypt and its medical service under his D.M.S. Sick and unfits were gradually cleared from battalions and field ambulances to the two Australian general hospitals and venereal compounds. No. 2 Australian General Hospital at Mena had on March 19th received orders to cease preparations for a move, and to re-erect marquees. The Heliopolis group of camps cleared their sick to No. 1, which also took the sick from the New Zealand brigades, the New Zealand force being without base and lines-of-communication units. The light horse brigades had participated in preparations for the departure, but at the end of March it was decided that all the mounted troops should remain for the present in Egypt.

Disposal of A.I.F. sick

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Unfits in drafts

In the infantry, "first reinforcements" (ten per cent) had by the end of March been almost used up in "repairing peace wastage"; an excess of five per cent of establishment from those more recently arrived had also been absorbed. On the revelation of the number of "unfits" in the original force and first reinforcements, the A.D.M.S., 1st Australian Division, in pursuance of a personal policy which can be seen taking form and direction, examined batches of second reinforcements,[9] with the result that on April 5th the D.M.S., A.I.F., cabled to Australia urging that, since "many men arriving should not have been passed," a standing board of two medical officers in each State should be detailed to examine finally every recruit. "Such course will save Commonwealth needless expense and the Army Medical Service here needless trouble." In this shape arose on the horizon a cloud which was to darken Australian medical counsel with misunderstandings and discord during the war and to cause vast expense and bitter dissension after it.

Anzac Corps moves

On April 1st General Bridges received orders for the Dardanelles. On the 2nd General Birdwood's movement orders were issued, and advance parties of the field ambulances went to Alexandria in preparation for the formidable business of embarking the vehicles, horses, men, and equipment of these highly organised units. The camp at Mena was left in the occupation of the 3rd Light Horse Brigade with No. 2 General Hospital at Mena House. No. 2 Stationary Hospital was shortly moved to Zeitoun, where it remained packed up while awaiting the mind of the M.E.F. General Staff. Medical units of the A. & N.Z. Army Corps, having been brought up to strength by the distribution of second reinforcements for the A.A.M.C., all moved at full strength. Transport waggons were embarked fully loaded and, with the ambulance waggons and other impedimenta, dumped somewhat promiscuously on the decks or into the holds. Three hundred mules and

[9] Of 82 specially examined on April 3, four were rejected for heart disease and hernia, and of the others the A.D.M.S. noted: "I would have rejected at least 15 per cent had I examined them in Australia," the defects being "dental caries, bad plates, varicose veins, varicocele, and deformities of toes."

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6,100 horses accompanied the corps; every transport except five had more than fifty aboard, and all carried up to fifty per cent more troops than normally. The vessels used for the A. & N.Z. Army Corps were for the most part cargo boats of small or moderate tonnage. The first transports sailed for Lemnos on April 7th.

Administrative Staff of M.E.F. remains

During this time the G.O.C., M.E.F., and his staff, working at high pressure, were engaged in organising an expeditionary force out of the various units and administrations of the M.E.F., in forming a base, and in making preliminary strategic dispositions. The administrative staff of the Mediterranean Expeditionary Force only arrived from England on April 1st. The D.M.S., M.E.F., Surgeon-General Birrell —who on his way out had conferred with the D.D.M.S. for Malta—took control of the medical affairs of the M.E.F. in Egypt.

On April 7th Sir Ian Hamilton left for Lemnos with his general staff to prepare the detailed plan in conjunction with the Vice-Admiral in command[10] and to make arrangements for the operations. Both the D.A.G. and D.Q.M.G. were again left behind. For the medical arrangements the Assistant-Director of Medical Services was taken, the Director of Medical Services being left in Alexandria to make arrangements for the base. G.H.Q., M.E.F., had on April 5th given instructions that the D.M.S., A.I.F., Surgeon-General Williams, "is for L. of C. duty, not for duty with the Army Corps, and will therefore not embark."[11]

By April 14th the force (apart from the Royal Naval Division, which concentrated at Skyros) had assembled in the spacious harbour of Mudros. The A.D.M.S., 1st Australian Division, arrived there on the 12th in the *Minnewaska*, which carried the Anzac Corps and 1st Australian Divisional staffs. The A.D.M.S., N.Z. & A. Division, arrived in the *Lützow*, on April 16th.

[10] Vice-Admiral J. M. de Robeck. The general plan also had still to be discussed with the navy.

[11] The organisation of the Australian Imperial Force from the point of view of the medical service will be understood from the diagram facing p. 65.

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The time for medical preparation for the initial phase of the campaign was now drawing to a close; indeed, in respect of certain vital requirements, it had already passed. What, then, was the extent of the provision so far as the base was concerned? Though an account of the medical organisation of the expeditionary force and of the conduct of the campaign is not within the province of this book, yet the special character and circumstances of the operations, and the considerable part played by the Australasian troops, make it necessary to go beyond the experiences of the A.I.F. alone. The preparation made for the campaign by the Director-General of Medical Services at the War Office was not, it is evident, based on any very definite information concerning the probable nature and extent of the operations. Even apart from the general military uncertainty, as the handmaid of the army the medical service is not admitted freely to intimate family councils. Opportunity for exact study by it of the combined naval and military problems would also seem to have been lacking.

The medical provision—no time for new Hospital ships

For landing operations at a distance from the medical base, the first medical problem must be that of sea-transport of sick and wounded. Here the tardiness of the decision to land in force operated very adversely for the medical service, and preparations were not based on any exact estimate of the requirements. The prospective provision of hospital ships for the Gallipoli expedition depended in some degree on whether Australasian sick and wounded were to be sent home or to England. The opportunity for debating this question in terms of desirability had, however, passed before definite preparations for the combined operations had begun. After March 18th both Australia and Great Britain were caught in a remorseless rush of events which permitted little discussion; and in the matter of hospital ships the time factor was inexorable. The proper fitting of a merchant vessel as a hospital ship took from six to eight weeks; none had been put in hand for the campaign, and the number available was very limited. The question of fitting up special hospital ships for the voyage to Australia was again raised between Egypt and the War Office on March 18th in connection with the

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arrangements for the campaign, and the Australian Government was again approached; but on the 26th the High Commissioner was informed by the War Office that "the practicability of providing two hospital ships for Australia as contemplated in our communication of 20th March is now very remote." It was agreed that for the present Australasian casualties invalided from the expeditionary bases —except certain convalescents "technically sick," who would be at no risk in passing through the Red Sea in summer on ordinary troopships—would go to Great Britain.

D.M.S., A.I.F., not informed

The D.M.S., A.I.F., was not informed of the deliberations concerning the hospital ships and the evacuation of Australian sick and wounded until April 5th, after the discussion had been closed. Then, after representing to the D.M.S. for the Force in Egypt that he should be informed of the course of events, he was given by the latter a partial presentation of the position. He took opportunity again to urge the High Commissioner that "proper hospital ships" for Australia should be put in hand at once (a step which had already been taken by the New Zealand Government), and that the transports to Australia must be specially "ear-marked" and fitted with cots in England.

Gen. Birrell's proposals

On April 4th the D.M.S., M.E.F. (Surgeon-General Birrell), newly arrived at Alexandria, submitted to the Deputy-Adjutant-General (Brigadier-General E. M. Woodward) a general statement of the medical situation. This included proposals for a "ferry service" of four or, if possible, five hospital ships between the Dardanelles and Egypt or Malta. On April 7th the War Office cabled that only the hospital ships *Sicilia* and *Gascon* could be used for the Dardanelles trip, with a regular service of two more between Egypt and England. It also stated that Australian sick and wounded would be evacuated to the United Kingdom, "except selected cases of men unfit for further service, who will be sent home under arrangements to be made by the overseas Dominions."

As one of his earliest measures, also, General Birrell had recommended that the lines-of-communication units should be employed in their proper sphere. To this end on April 5th

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he submitted to the General Staff of the M.E.F. an important proposal—that in addition to the units already assembled at Lemnos—No. 1 Australian Stationary Hospital and the 1st Australian Clearing Hospital—there should be sent Nos. 15 and 16 British and No. 2 Australian Stationary Hospitals and Nos. 4 and 5 Advanced Dépôts of Medical Stores, this being only the minimum allowed by war establishments for the lines of communication of a force of two divisions (the M.E.F. consisted of four). The General Staff refused sanction, and the proposed provision was cut down to include only No. 15 Stationary Hospital and No. 4 Advanced Dépôt.[12]

Hospitals—Australian deficiency now recognised

Coming to the provision of accommodation for sick and wounded, for the British section of the force, the ordinary establishment of medical units had been sent, with ample medical stores. The Australian section, however, as has already been stated, had not been furnished with a full quota of the corresponding medical base-units, and with the prospect of early and intense fighting, the disposal of the prospective Australian wounded became a serious and urgent problem. It was only with the arrival of the M.E.F. that the Egyptian Command realised the inadequacy of the Australian medical organisation in Egypt to meet the requirements of a campaign. A situation both difficult and dangerous had been created through the combination of hesitancy and haste in the military policy, the overlapping of responsibility as between the Egyptian and the M.E.F. commands, and especially the fact that the medical problems of the Australian force were not the recognised business of anyone in particular. The D.M.S., A.I.F., was isolated, without staff, status, or responsibility. The D.M.S. for the Force in Egypt did not himself resolutely face the difficult and thorny problem of the Australian force, nor, on the other hand, was he willing to pass responsibility or permit any freedom of action to the D.M.S., A.I.F.

It was now inevitable that the defective facilities for invaliding would, in the expected event of heavy fighting, cause a great accumulation of casualties at the expeditionary

[12] In this refusal the General Staff seems to have acted on War Office authority. M.E.F. lines of communication had not yet been constituted in advance of Alexandria.

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bases. Except for the two existing 520-bed hospitals (Nos. 1 and 2 Australian General) all Australian medical units had either embarked with the field force or were packed up in readiness to do so. Both these hospitals were already filled beyond their establishment with sick and invalid Australians and New Zealanders, and were at the same time carrying on infectious camps and finding personnel for the field force and transports as well as for British hospitals. Some relief had been given by the clearance of 285 sick (epidemic invalids and 36 cases of venereal disease) to Australia by the *Ulysses* on March 20th, and by the despatch of 450 cases of venereal disease, chiefly Australian and New Zealand, to Malta on March 26th. But at the beginning of April not one bed was available for wounded in the Australian hospitals.

Emergency measures arranged

On his return from the Dardanelles on March 26th General Birdwood conferred with the D.M.S., A.I.F. The registrar of No. 1 Australian General Hospital, Major J. W. Barrett, also had special opportunities of learning from him the trend of events, and became deeply impressed with his estimate of the casualties to be expected. This officer, a man of exceptional insight and organising ability, and temperamentally inclined to concern himself with the wider aspect of affairs, was not disposed to await instructions where he saw necessity and opportunity for action. His administrative and social initiative had at an early date brought him and his unit prominently before the D.M.S. for the Force in Egypt; he was at this time also closely in touch with the D.M.S., A.I.F., who, having no staff of his own except a staff-sergeant, and being excluded from effective knowledge of events or opportunity for participating in arrangements, came to rely on him. These circumstances, and the special situation of No. 1 General Hospital, made it inevitable that this unit should become prominent in medical events at the base of operations. At the end of March a meeting was held at which were present the D.M.S. for the Force in Egypt, the D.M.S., A.I.F., the Commandant of the Australian Intermediate Base Dépôt, and the officer commanding and the registrar of No. 1 General

No. 1 A.G.H. prominent—expansion authorised

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Hospital. The D.M.S. for the Force in Egypt agreed to arrangements being made for the "expansion" of the Australian hospitals, in view of a possible rush of wounded, whose probable numbers were but vaguely estimated and could not be obtained through the D.M.S., M.E.F., from the General Staff.

The essential factors involved in expansion were personnel, equipment, and accommodation. By the financial arrangement (to which reference has been made)[13] the War Office took the responsibility for finding buildings, the Commonwealth for personnel and fittings, which had therefore to be authorised by an Australian representative. It now became necessary to call upon the D.M.S., A.I.F., since he was still regarded by the Defence Department as representing Australia. He held the purse-strings, both through control of "Red Cross" funds and supplies and through the fact that his approval was required for any special expenditure in the shape of local purchases on the part of the Commandant, Australian Intermediate Base Dépôt. In default of another general hospital, the D.M.S., A.I.F., authorised a policy of "expansion" of Nos. 1 and 2 General Hospitals to 1,000 beds each, and the purchase of the necessary equipment, beds, bedding, and so forth, either officially or through Red Cross funds. The option was secured of a large place of entertainment—"Luna Park"—adjoining No. 1 General Hospital, and of the Ghezireh Palace Hotel on the western outskirts of Cairo. Though the policy was accepted by the D.M.S. for the Force in Egypt, and though these buildings were inspected in anticipation and included in his "bed state," the hospitals could not obtain permission to take them over in preparation for wounded until the wounded actually arrived. Purposeful and vigorous preparation was, however, undertaken in anticipation by the Australian representatives in Egypt. It centred on No. 1 General Hospital. Situated advantageously, and administered with restless initiative, this unit entered upon an ambitious and far-sighted programme of expansion, which included, besides the fullest opening of rooms in the Heliopolis Palace Hotel for the central hospital, the establishment of

No. 1 A.G.H. takes initiative

[13] *See p. 57.*

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16. The Heliopolis Palace Hotel, Egypt
Occupied by No. 1 Australian General Hospital, 1915.

Lent by Colonel W. E. Summons, A.A.M.C.
Aust. War Memorial Collection No. H13985.

To face p. 104

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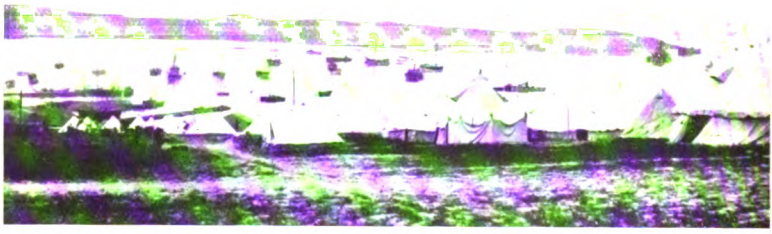

17. Part of No. 1 Australian Stationary Hospital at East Mudros, March 1915

The inlet opens up on right to the main harbour.

Lent by Lieut.-Colonel Hon. Sir S. S. Argyle, A.A.M.C.
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18. Installing the generator for X-ray plant and electric light at No. 1 Australian Stationary Hospital, East Mudros

Lent by Lieut.-Colonel Hon. Sir S. S. Argyle, A.A.M.C.
Aust. War Memorial Collection No. H13987.

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associated "auxiliary convalescent dépôts." To clear the hospital from infectious cases, the "rink" at Luna Park was taken over at once—the rent being paid from "Red Cross" funds—and fitted with the rough but fairly satisfactory beds of palm-wood known as angeribs. On April 6th a small staff was installed, and all infectious cases were transferred thither. On the 9th the Officer Commanding No. 1 General Hospital requested that "all reinforcements for hospitals that have arrived here and that may arrive in the near future be detailed for duty at No. 1 A.G.H." The D.M.S., A.I.F., however, hesitated to take so drastic a step, and the proposal for the time dropped.

No. 2 Australian General Hospital, "marking time" in an almost abandoned camp seven miles from Cairo, with its personnel seriously depleted, slowly reassembled its equipment. A request that it might open in Alexandria was refused on the ground that no accommodation was available. On April 9th the commanding officer was informed that Mena House would be closed on May 8th and his unit transferred to the Ghezireh Palace Hotel. This was found on inspection to be equal to accommodating 420 cases, besides staff. No preparations for the projected transfer could, however, be made, since permission to take over the building was withheld by the D.M.S. for Egypt. Mena House, meanwhile, filled up with invalids awaiting return to Australia.

Equipment—by purchase locally and in England

It was in the circumstances a difficult matter to provide at short notice hospital equipment and medical stores adequate to the large expansion that would be necessary to meet the battle requirements of a force so seriously under-established with medical units as was the A.I.F.[14] British base ordnance and supply dépôts were

[14] In the British Army, medical supplies were obtained by units from three sources—advanced or base dépôts of medical stores, ordnance dépôts (Army Ordnance Department, or shortly "A.O.D.") and supply dépôts (Army Service Corps, or "A.S.C."), the first being under the medical department of the Adjutant-General, the two latter under the Quartermaster-General's branch. Medical dépôts were responsible for supplying (besides drugs and dressings) medical equipment and hospital furniture: the Ordnance Department chiefly for "non-expense" stores, furniture, fittings and hardware (including bed pans), hospital clothing, and also the "first field dressing"; the A.S.C. for "medical comforts" and special rations. In addition (though entirely subsidiary and unofficial) were the so-called "Red Cross stores"—material provided through the medical service by voluntary organisations for the humane alleviation of cases of sickness and wounds. The respective functions of these four agencies were at this time very imperfectly understood by a large proportion of medical officers in the A.I.F.

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established at Alexandria under the Mediterranean Expeditionary Force. Australian units in Cairo drew from dépôts of the "Force in Egypt." The stocks held, however, being small, were completed by "local purchase," effected through the small and imperfectly organised ordnance section of the Australian Intermediate Base Dépôt in Cairo, or chiefly, through the Force in Egypt. Iron bedsteads could not be obtained in sufficient numbers, and recourse was had to the "angerib" bedsteads, which were purchased in large numbers at the cost of 1s. 4d. and stored in No. 1 General Hospital. Mattresses were made from cotton wool, native grown, of which a large quantity was received as gift.

On March 29th the D.M.S., A.I.F., cabled to the High Commissioner for "drugs and dressings for 3,000 cases for three months," and on the same day, with the approval of the D.M.S. for the Force in Egypt, a "base dépôt for drugs and medical stores and other Red Cross stores under the D.M.S., A.I.F." was established at No. 1 General Hospital. A medical officer was put in charge of the medical store: five privates were detailed as packers, sorters, and clerks. The department was unconnected with the hospital dispensary and did not include a qualified pharmacist. The Red Cross Society having as yet no staff of its own oversea, a medical officer and two nurses were detailed for a "Red Cross" store in the basement of the Heliopolis Palace Hotel. All Australian medical units in Egypt and transports to Australia were supplied, as were also a number of British units (there being as yet no supplies from the British Red Cross). In addition 420 cases of medical stores and "Red Cross" supplies arrived early in April. These included anti-dysenteric and anti-tetanic serum, of the latter of which, on account of a shortage in France, half was sent to the War Office. The stretchers ordered were supplied by the ordnance department in Egypt.

Stores and motor ambulances

The only military motor-ambulance transport in Egypt was that of the Australian and New Zealand forces. The D.M.S. for the Force in Egypt, being entirely dependent on others for this essential service, obtained from the D.M.S.,

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A.I.F., and the A.D.M.S. of the New Zealand force a statement of the situation, and at his request each sent seven cars to Alexandria. Though the Australian cars had hitherto been held to "belong" to the various units to which they had been presented, they were now by order of the D.M.S., A.I.F., assembled in a garage established by him at the Heliopolis Palace Hotel, where a repair workshop with a sergeant mechanic in charge had been formed and fitted up from Red Cross funds. Accommodation was also taken for a garage at Ghezireh. Thirty-three cars of heterogeneous make comprised the "fleet"; for those still being obtained, the suggestion made by the War Office that they should be of a uniform standard and type was adopted.

Australians at M.E.F. Base

The two Australian general hospitals in Cairo were not recognised as part of the Mediterranean Expeditionary Force but came entirely under the D.M.S. for Egypt, though the D.M.S., A.I.F., reported to General Birrell on the situation. In the hospitals at the M.E.F. Base now being formed at Alexandria, however, Australia was not without representation. In Nos. 15 and 17 British General Hospitals, whose establishment as 1,040-bed hospitals was proceeding slowly under the D.M.S., M.E.F., the lack of nurses was in part supplied by Australia. The base also included other important activities which intimately concerned the Australian medical service. These comprised repair of wastage from reinforcements and from sick and wounded who had recovered, the notification of casualties, and the maintenance of military records of sickness and woundings. By *Field Service Regulations* the organisation responsible for these functions is contained in the "Third Echelon" of G.H.Q., that is to say, the Adjutant-General's office at the expeditionary base (where returns are received and records kept), together with the divisional "overseas base dépôts" (where "effectives" are held awaiting calls from the "front" made through the "field return"—Army Form B.213—or by "special demand"). Third Echelon of the Mediterranean Expeditionary Force was established at Alexandria by April 1st, and an Australian records section for the Australian Intermediate Base Dépôt was attached. This section came

"Third Echelon"

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under the direct control of the D.A.G., M.E.F., through his representative at the base, the assistant-adjutant-general ("A.A.G."), who administered the Third Echelon and was responsible for co-ordinating demands from the front with the effectives available in the overseas base dépôts. The British Overseas Base Dépôt camps were established just outside Alexandria at Mustapha, and on April 4th the personnel of the A. & N.Z. Overseas Base Dépôt went to that place. On representations by the G.O.C., A.I.F., it was agreed that the Australian Intermediate Base Dépôt, as the link between the Defence Department and the A.I.F., should remain in Cairo under the General Officer Commanding the British Force in Egypt, and should be "in touch with the training camp which is by War Office orders to be formed under General Spens."

"M.E.F." and "Egypt"

On April 9th the D.A.G., M.E.F., "appreciated" the position and decided that untrained and unfit men should remain in Cairo under "Egypt" but all men fit to take the field should be sent to the Anzac Corps Overseas Base Dépôt at Alexandria under "M.E.F." General Maxwell, however, informed him of his desire that, instead of being held (as normally) in the overseas base dépôt, trained and fit Australian troops, as well as untrained and unfit, should remain under himself at Zeitoun until demanded by the Third Echelon and detailed for duty in the M.E.F.; and, in general, that all Australian troops in Cairo should be on the strength of his command unless and until detailed to join the M.E.F. This arrangement was ultimately accepted.

A further representation by the G.O.C., Egypt, made a few days later, brought under his control the hospitals at the M.E.F. Base. On April 13th the D.M.S. for the Force in Egypt delivered to the D.M.S., M.E.F., a letter from General Maxwell informing him that "all the medical arrangements in Egypt must be under my sole direction, and I desire that Surgeon-General Ford should have complete supervision and control of all medical arrangements at Alexandria." This decision was supported by the War Office. In the peculiar circumstances of the occupation of Egypt some such adjustment was obviously inevitable. The fact, however, that the

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expeditionary base thus became an integral part of the organisation for a different seat of war—the Egyptian—proved at times an embarrassment to the Mediterranean Expeditionary Force. Thereafter the D.M.S. for the Force in Egypt took over all responsibility for the treatment, convalescence, and invaliding of casualties from the M.E.F. arriving in Egypt; and it was subsequently agreed also that Alexandria should be constituted the general distributing centre for the force.

Australians on Hospital ships

The Australian medical and nursing services were well represented not only at the Base and Advanced Base but on the hospital ships provided for the expedition. To the *Sicilia* the D.M.S. for Egypt sent Lieutenant-Colonel F. D. Bird (R.A.M.C.T.)[15] as consulting surgeon, with four nurses brought by him from Australia and others from No. 2 Australian General Hospital. The whole local supply of Thomas splints was bought up by this officer, and local manufacture was initiated by him.[16] To the *Gascon* the senior surgeon of No. 1 Australian General Hospital, Lieutenant-Colonel G. A. Syme (A.A.M.C.), was appointed consultant, the nursing staff being chiefly from No. 2 General Hospital. Red Cross stores for the ships were chiefly Australian.

A.I.F. Administration from front

It remains to mention two last-minute actions of much importance in the medical history, in one case, of the A.I.F., and, in the other, of the campaign. First, before leaving for the front as commander of the 1st Australian Division, General Bridges made two important dispositions in regard to promotion and posting to positions vacant through casualty or created by expansion. Recommendations outside the 1st Australian Division were to be submitted through General Bridges to General Birdwood, except in the case of the line-of-communication units in Egypt, where the procedure would be through the Australian Intermediate Base Dépôt to the General Officer Commanding the British Force in Egypt. Machinery for this A.I.F. administration in the field was provided for by the attachment to the 1st Australian Division of an "Assistant

[15] An Australian surgeon who at the outbreak of war offered his services to the War Office in an honorary capacity and came over in the *Orvieto*.

[16] At a later date an extensive army splint factory was formed at Alexandria.

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Military Secretary," with a small clerical staff. This was to become the highest administrative department of the Australian force abroad and accompanied the G.O.C., A.I.F., through all the vicissitudes of that unique "command" during the war. Similarly the Australian Intermediate Base Dépôt became the instrument for Australian autonomy at the base. But, unfortunately, the D.M.S., A.I.F., was left outside this machinery; the medical section of the Intermediate Base Dépôt was not filled; and the interior economy of the A.A.M.C. in Egypt was thus left in the hands of the Commandant, A.I.B.D., and the D.M.S. for the Force in Egypt, the latter being entirely responsible for its actual employment.

A decision reversed

Second, on April 17th, following the departure for Lemnos on the 16th by the *Hymettus* of No. 15 British Stationary Hospital and No. 4 Advanced Dépôt of Medical Stores, an order was suddenly received at the Base from the General Staff M.E.F., that No. 16 British and No. 2 Australian Stationary Hospitals and No. 5 Advanced Dépôt of Medical Stores be sent at once to Lemnos. The reason for this sudden reversal of the decision of April 5th regarding the disposition of these units will be explained in the next chapter.

On the 18th the Director of Medical Services together with the Deputy-Adjutant-General and Deputy Quartermaster-General of the Mediterranean Expeditionary Force arrived at Lemnos—only five days before the date fixed for the landing on the Gallipoli Peninsula!

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CHAPTER VII

THE GALLIPOLI CAMPAIGN: TACTICAL PREPARATIONS

On the arrival of the general staff of the M.E.F. at Lemnos, plans for a landing on Gallipoli were drawn up by it. These included a scheme for the evacuation of casualties based—and properly so—on the expectation of gaining an effective footing, or of a total repulse. Subsequently, at the instance of the medical staff, enlarged provision was arranged for. On the arrival at the last moment of the administrative staff, still larger provision was suggested and approved; but, being dependent on movements of units and distribution of orders which (partly through lack of small craft) did not occur in time, this scheme remained practically inoperative.

* * *

At Lemnos—the "detached force"

The barren and sparsely populated island of Lemnos was the scene of the final preparations for the combined attack and the "take off" for the landing. But at this time it did little more from the military point of view than protect with its rugged hills (then splendidly clothed in an ephemeral mantle of flowers) the magnificent but undeveloped harbour of Mudros—the real rendezvous and *point d'appui*—from the full force of the furious equinoctial gales, which, even so, at times made intercourse between ships impossible. These winds blow intermittently in this region during a well-defined period—usually ending about the middle of April—and were an important factor in the military preparations. By arrangement with the Greek Government, the Officer-in-Charge of the Naval Base, Mudros Harbour—Rear-Admiral R. E. Wemyss—had been constituted Military Governor of the island.

It will be recalled that, since the first week in March, the 3rd Australian Infantry Brigade, together with No. 1 A.S.H. and the Clearing Hospital, had been stationed at Lemnos as the "Detached Force." Self-contained and independent, and conscious of the importance of the special part for which it had been cast, the 3rd Brigade had been for six weeks

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hardening itself by hill-climbing, and had practised on a small scale landings by day and night and assaults. The regimental stretcher-bearers, freed at last from band duty, were for the first time fully available for practising methods of first-aid and the transport of wounded.

The 9th Battalion and a section of the 3rd Field Ambulance camped on the eastern shore of the harbour, near the village of Mudros; the other units lived in their transports. The stationary hospital was landed on March 12th, and by prodigious labour established a tent-hospital for 200 cases. Nearly 200 tons of equipment had to be landed in row-boats at the flimsy local jetty, and were man-handled to the site. By March 17th 120 cases were held. In a fortnight an operating theatre was established.

One of the first actions of Colonel E. G. Sinclair-MacLagan, the commander of this force, had been to have the water-supply investigated by his engineer and specialist sanitary officer and some shallow wells were sunk and guarded. With the co-operation of Rear-Admiral Wemyss, who was keen to fit the port to act in some degree as an advanced medical base, and who appears to have expected that hospitals would soon be established on shore, a rough stonework pier was begun.

Main force arrives

On April 10th the G.O.C., M.E.F., and his General Staff arrived, headquarters being established in the troopship *Arcadian*. The 20 transports of the 29th Division and those of the A. & N.Z. Army Corps (40 vessels) arrived on the 12th April. The R.N. Division concentrated at Trebuki in the island of Skyros. Some 108 transports, besides battleships and small craft, were concentrated in the harbour of Mudros, which, six weeks before, was "just a slumbering Ægean port disturbed by little except the sparse and drowsy local trade." "It was centuries" (to quote from the British Naval Historian) "since the slumbers of the Ægean had been disturbed by anything comparable with that vast array. Not even the fleet of the Holy League, when it gathered to stem the tide of Turkish expansion at Lepanto, could have equalled it in numbers or in force."

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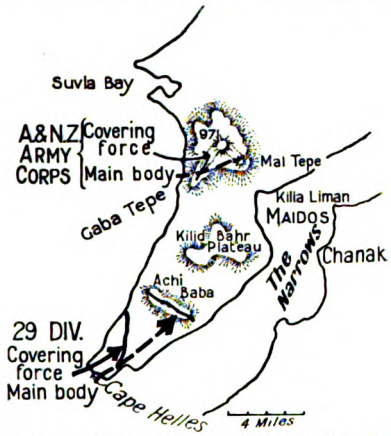
By April 13th the general plan for the Gallipoli operation drawn up in Egypt, had been settled by Sir Ian Hamilton and Vice-Admiral J. M. de Robeck; the working out of the tactical details for the various landings proceeded *pari passu* with preparations for their execution, and with special training of the troops for an opposed landing.

The general plan

The basis of co-operation was the *Manual of Combined Naval and Military Operations,* published in 1913. General Hamilton's strategic plans comprised a main landing at the toe of the Peninsula (Cape Helles) by the veteran 29th Division, with Achi Baba hill, some six miles distant, for its tactical objective, and a number of secondary landings and feints. Of these the chief were to be made by the Anzac Corps on an open beach immediately north of the well fortified cape known as Gaba Tepe, and by the French Division on the Asiatic shore. The immediate objective of the Australian landing was the rugged and semi-isolated range of Sari Bair, running inland north-east by north from the sea near Gaba Tepe; thence an immediate advance would be made towards The Narrows. The main ridge runs from Ari Burnu up to Koja Chemen Tepe, 971 feet high. Thence the range continues inland for some two and a half miles, to dwindle in the Anafarta Plain.



The final objective for the 29th Division was Kilid Bahr Plateau, but only Achi Baba was to be reached on the first day.

Plan of Gaba Tepe Landing

The successive steps in the initial objective were a series of heights on the range (culminating in "Hill 971"), and of ridges diverging from it in herring-bone fashion. These may conveniently be referred to as the "first," "second," and "third" ridges. An important feature of the landing

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would be the capture of Gaba Tepe, from which the inland limb of the third ridge slopes steadily up to the 700-feet crest. After this and the main ridges had been seized by the 1st Australian Division, the A. and N.Z. Army Corps was to advance to a farther objective, Mal Tepe, closely overlooking The Narrows.

General Birdwood's tactical plan involved the surprise landing of a covering force (3rd Australian Brigade) to be made before daylight by tows from battleships and destroyers. This would capture Gaba Tepe and other points of vantage. The 2nd Brigade would land immediately afterwards on its left, and be followed at once by the 1st. The disembarkation of the 1st Australian Division would, it was hoped, be completed by 9 a.m. The N.Z. & A. Division would land as soon as the position was made good, and was timed to arrive at the beaches by noon. A successful landing would be followed by the disembarkation of transport and an immediate advance. The distance from Ari Burnu to Hill 971 is about two miles; the country was known to be broken and rugged.

The Medical Plan

The only reference to the disposal of wounded that was made in the *Manual of Combined Operations* was that, in case of compulsory re-embarkation—

> wounded men, if they cannot be embarked during daylight and without interfering with the re-embarkation of other troops and material, must be left on shore, and the best arrangement possible made by the military commander for their care.

Actual precedent on a comparable scale was lacking; Aboukir Bay afforded none, since it antedated the medical service. The most applicable was that of the French landing at Algiers in 1830, when by special agreement the wounded were conveyed to hospitals in the Spanish island of Minorca, but the application could be but partial. Consequently in the two weeks available an original plan had to be designed and organised for the disposal on land and by sea of the wounded from four divisions.

The normal system in the British Army for the evacuation and disposal of wounded is described elsewhere.[1] The

[1] *Page 11.*

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adjustments in the machinery, necessitated by the circumstances of the landing, will be understood by reference to the diagram overleaf. The medical arrangements for evacuation, like those for the attack, were based on the expectation of complete success or failure. At Lemnos medical arrangements were taken in hand by an officer of the General Staff, who drew up a scheme based on an estimate of a total of 3,000 wounded.[2] With this plan Colonel Keble, the A.D.M.S., M.E.F.—the sole member of General Hamilton's medical staff then at Lemnos—disagreed on the score of inadequacy. It was only, however, by spasmodic and belated accretions that additional provision was made.

General Staff's Scheme

In "Force Order No. 1" of the M.E.F. of April 13th—the preliminary scheme of the landing operations—it was laid down as the only instruction under "Medical" that "C.C.S's will be located on the beaches . . . by the afternoon of the first day." On the 14th Anzac Corps Headquarters was informed by letter that "one hospital ship for dangerously wounded will attend the landing of the Army Corps." It was also requested that the corps should "detail a transport to act as Temporary Hospital Ship for less than seriously or dangerously wounded cases, to which G.H.Q. will detail the necessary personnel." For the main landing by the 29th Division at Cape Helles, there was to be a similar provision of one hospital ship and one transport.

[2] The drawing up of medical arrangements for a campaign or military operation would ordinarily be the duty of the chief administrative medical officer, working under the "A" Branch and in conjunction with the departments of the army concerned; subject always to the direction of the general staff as to its strategic and tactical place in the operations. In the British Army the medical service was not a fully responsible branch, but, since 1906, an "administrative department" of the adjutant-general's branch, under which its activities are exercised (though in some respects its actual work is related more closely to that of the Q.M.G.).

In the Gallipoli operations the General Staff of the G.H.Q., M.E.F., immersed in problems of movement, appears to have relegated to an unusually subordinate place in strategic and tactical schemes the part of all the services of maintenance, and particularly in the preparations for the landing, appears to have taken on itself to an exceptional extent the arranging of the affairs of every branch of the army. The medical service, doubly subordinate, suffered most, serious consideration of the medical problem being deferred till the last moment. While the preoccupation of the general staff in its tremendous task can be understood, and the necessity for maintaining the medical service as a subordinate department must be assumed, it is impossible to avoid the conclusion that to these factors is to be traced much of the delay and defect in the medical arrangements at this time. (For the change in the position of the medical service since the war, *see Vol. II.*)

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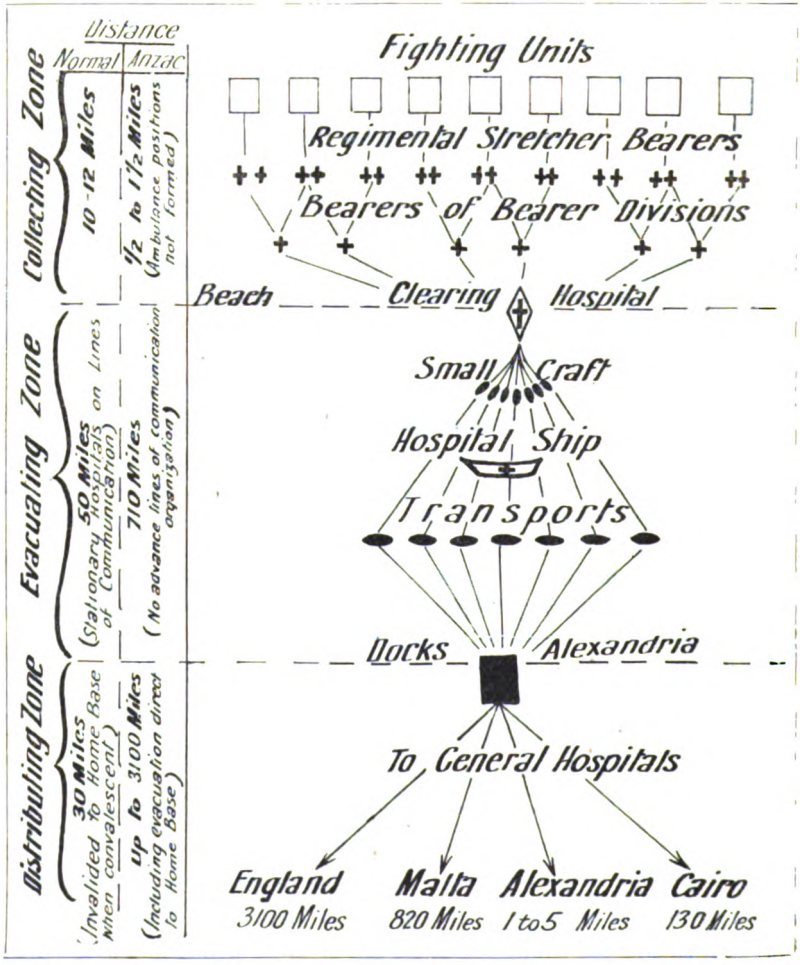
Diagram No. 3



SCHEME OF EVACUATION FROM ANZAC, SHOWING ADJUSTMENTS TO NORMAL SYSTEM (*of Diagram at p. 12*)

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On the 15th Colonel Keble issued "instructions for A.D.M.S. 29th Division." He was to inspect the transport *Caledonia* for that division and report—

Instructions issued by Col. Keble

whether there is a sufficiency of medical equipment on board for the run of 48 hours to Alexandria, keeping in view that the majority of wounded should not require readjustment of dressings till the Base was reached.

Dressings and equipment, additional to what might be on board for the troops, were to be obtained from his casualty clearing station. Three officers and twenty other ranks were to be taken from the field ambulances as staff. The clearing station was to be under him "until further notice" and to operate near the beach; arrangements would be made by the navy to convey wounded from shore to ship, while for loading wounded into boats fatigue parties would be available from the Principal Military Landing Officer ("P.M.L.O."). The equipment to be taken ashore by the clearing station was laid down,[3] and one tent sub-division was to be landed "with what they could carry" as a "dressing station." On the arrival on April 12th of the Headquarters of the A. & N.Z. Army Corps and the 1st Australian Division, Colonel Howse, the A.D.M.S. of the division, was—in the absence of a D.D.M.S. of the corps—given similar instructions. He was further informed that he would have to provide the line-of-communication transport for his lightly wounded besides making his own arrangements for land. The effect of this unusual extension of the duties of divisional officers (necessitated by the absence of line-of-communication organisation and a corps medical staff) was to cause serious dislocation of medical administration.

Study of the proposed arrangements caused Colonel Howse grave apprehension in respect of the evacuation by sea, and he informed the divisional commander of his concern as to the adequacy of the provision that was being made. General Bridges agreed that, as General Officer Commanding, A.I.F.,

Col. Howse acts for Anzac Corps

[3] The equipment laid down for the clearing station was as follows: 4 medical comfort panniers, 1 pair surgical panniers, 1 pair field medical panniers, 1 field fracture box, 4 boxes of reserve dressings, 4 medical companions with filled water-bottles, 8 surgical haversacks, 1 portable operating table, 100 blankets, 50 waterproof sheets, 100 stretchers, 12 bell tents, 1 primus stove and oil, kindling wood, 6 camp kettles, and fresh water.

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he might be held to have a general responsibility outside his divisional command, and, with his A.D.M.S., he interviewed the corps commander, who, though also disclaiming responsibility, recognised the seriousness of the matter and, through the D.A. and Q.M.G., asked that Colonel Howse should make suggestions for the medical arrangements of the corps. This officer, while following in general the scheme laid down (including provision for only one transport for lightly wounded), strongly criticised the breaking up of field ambulances to supply personnel and the depleting of the clearing station to provide equipment for the lines of communication, since no advanced dépôt of medical stores was available for replenishment. Pointing out that No. 2 Australian Stationary Hospital was available in Egypt, he urged that for the lines of communication the proper units, namely the stationary hospitals, should be employed. He suggested also that, since the 1st Australian Division was to land first, it might be desirable that its clearing station should be under him. This was approved by corps and accepted by General Headquarters. He recommended, moreover, that in view of the impossibility of duly preparing for seriously wounded those transports which carried horses, the troopship *Osmanieh* (a ship of 4,041 tons which had been already partly equipped) should be properly fitted up as an additional hospital ship. This also the General Staff agreed to endeavour to do. On the 16th the Base Commandant, Alexandria, was instructed by cable to send up No. 2 Australian and No. 16 British Stationary Hospitals and No. 5 Advanced Dépôt of Medical Stores.

Meanwhile, on April 15th Colonel Manders, the A.D.M.S., N.Z. & A. Division, arrived and was given a copy of Colonel Keble's instructions to the 29th Division. A special order was now issued to the A. & N.Z. Army Corps which opened another stage in the medical arrangements. To supplement the hospital ship *Gascon* (allotted to the corps), which would accommodate "probably 300 serious cases," there were to be selected "two or more" transports to be used for both seriously and slightly wounded, and, for each of these ships, three officers and twenty other ranks were to be detailed by

Further transports for wounded

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each A.D.M.S., who was also to provide equipment. The order continued: "as owing to the distance the D.M.S., M.E.F, will be unable to exercise any control over the medical arrangements of the A. & N.Z. Army Corps, the senior A.D.M.S. should be instructed to act in his stead." As the senior officer, Colonel Manders, though not officially appointed D.D.M.S., for a time reluctantly took over these duties. At his request the A.D.M.S., 1st Australian Division, was to remain responsible for the Clearing Station "until both divisions should be ashore." Instructed by the D.A. & Q.M.G. of the Anzac Corps, Colonel Manders reported to G.H.Q., M.E.F., that only two transports were desired by the corps, the *Clan Macgillivray* and *Seang Bee* being named. In doing so he noted that "this gives us approximately accommodation for 1,200 sitting up and 200 lying down; the strength of the two divisions being 25,000 men, this allows 5½ per cent of casualties"—in addition, as is evident, to the hospital ship.[4]

Col. Manders takes over—Corps forecast of casualties

By considering the problem in terms of the actual percentage of casualties to be expected, and of the number of wounded which the selected transports could take with due regard to efficiency—and not the greatest number with which they could possibly be crowded—the acting D.D.M.S. introduced a principle of exactness hitherto lacking, evacuation having been dealt with in terms of ships rather than of number of wounded. He referred to the 1st Australian Division the matter of appointing a special medical officer, with staff of N.C.O's, for duty on the beach—to control, under the Principal Military Landing Officer ("P.M.L.O."), the classification and distribution of wounded and to notify to G.H.Q., M.E.F., from time to time the situation on shore. But no record of the appointment of such an officer or staff appears in corps or divisional orders; for some reason the position does not appear to have been filled.

Beach medical officer not appointed

[4] The officer commanding the 1st A.C.C.S., instructed by the A.D.M.S., 1st Australian Division, had inspected the *Clan Macgillivray* and reported that she would be able to accommodate 200 serious and 1,000 slight cases. Those numbers were reduced by Corps to 100 and 600 respectively.

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Anzac Corps "Operations Orders" were published on April 18th. The "medical arrangements" issued therewith by the D.A. & Q.M.G., together with special medical orders by the two A.D'sM.S., and "general arrangements as regards wounded" in the naval orders of Rear-Admiral C. F. Thursby[5] (all issued on the 19th and 20th), became the basis of action for the evacuation of wounded from the A. & N.Z. Army Corps. The scheme outlined in these included, more or less explicitly, arrangements for each of the various stages of evacuation from front line to the lines of communication, and must be briefly summarised.

A. and N.Z. Scheme for evacuating casualties

All medical arrangements for land were rigidly governed by the principle that only an absolute minimum of medical personnel and equipment could be taken ashore on the first day. The term "as much as can be manhandled" came to be used in connection with the latter. Corps orders provided that—

1. A Casualty Clearing Station, found by No. 1 A.C.C.S. attached to the A. & N.Z. Army Corps for the period of the operation, is being established on the beach in the vicinity of the northernmost landing-place. This station will take the place of the tent sub-divisions of Field Ambulances till these are landed. Naval arrangements for removing casualties are:—Hospital Ship *Gascon* for serious cases; Transports *Clan Macgillivray* and *Seang Choon* for slight cases.[6]

2. For transport from shore to ship, Navy launches equipped as Hospital boats for the transport of wounded will ply under timings to be arranged as the medical situation develops. The work cannot, however, commence until the infantry of the Australian Division is ashore.

By special instructions, the commanding officer of the 1st Australian Casualty Clearing Station, four medical officers, and sixty other ranks were detailed to form the clearing station on the beach. The detachment was to "operate near the beach in a selected sheltered spot," tents not to be erected unless necessary. The selected transports would be made ready for the reception of wounded "as soon as the troops have landed."

[5] Who on the naval side directed the northern landing.

[6] The latter was substituted for the transport *Seang Bee*. That vessel had on board one and three-quarter tons of medical stores brought by the A.D.M.S., N.Z. & A. Division.

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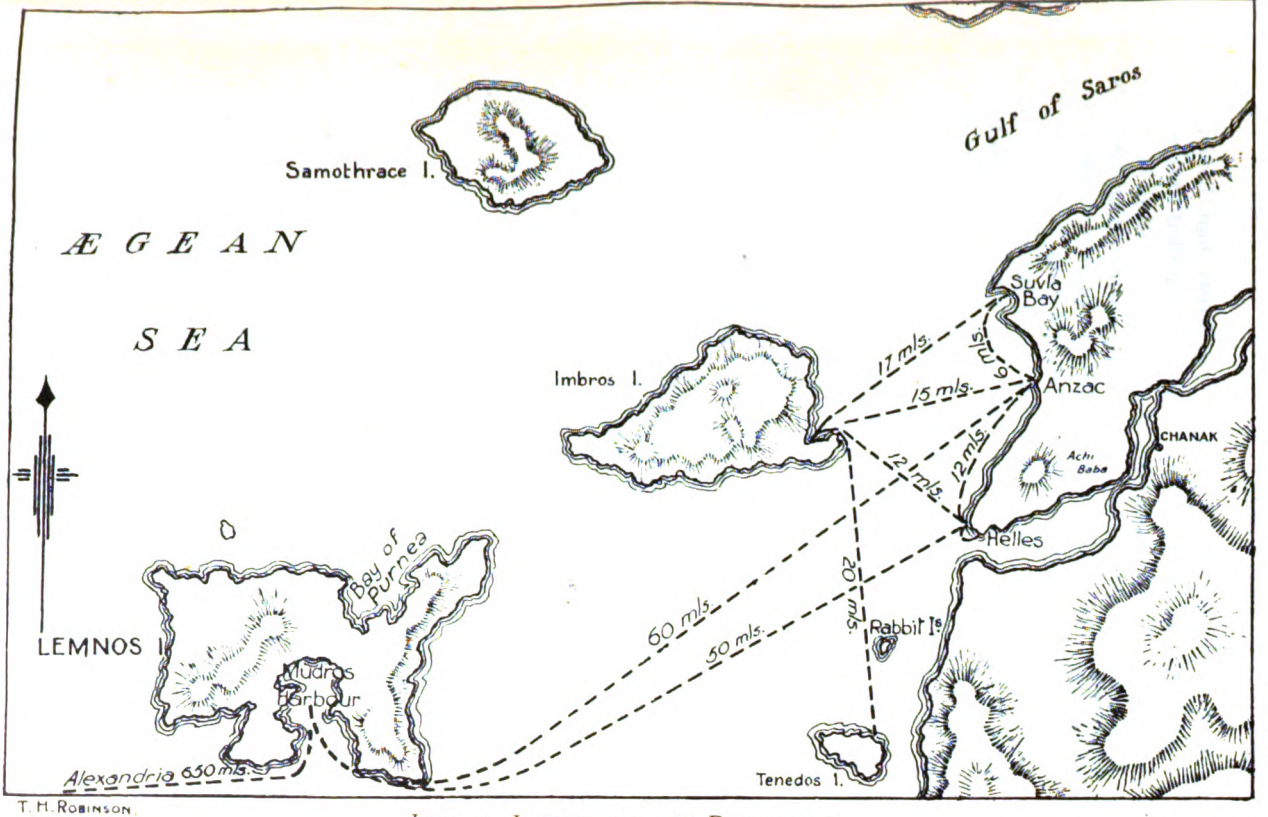

T. H. Robinson.

LEMNOS, IMBROS, AND THE DARDANELLES

Map No. 3

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By the 18th the A.D.M.S., 1st Australian Division, had completed his preparations, and had divided the staff and equipment of the 1st Australian Casualty Clearing Station, the commanding officer being instructed to take "equipment necessary for a temporary dressing station." Three officers and twenty other ranks were placed on the *Clan Macgillivray* with plentiful equipment from the clearing station. The A.D.M.S., N.Z. & A. Division, made the necessary arrangements for staffing the *Seang Choon* and equipping her from his reserves on the *Seang Bee*.

Arrangements for two transports

The 1st Australian Divisional operation orders, issued on April 19th, included medical instructions by the A.D.M.S. to the clearing station and to each field ambulance. Those for the 3rd Field Ambulance ran as follows, the others—*mutatis mutandis*—being identical:—

Orders to field Ambulances and C.C.S.

> The Bearer Sub-division of No. 3 Field Ambulance, 3 officers, 3 N.C.O's, and 27 squads of 4 men with all available water bottles and surgical haversacks will land with the covering party. They will be under the orders of the O.C., Covering Force, and will operate over the area occupied by the 3rd Infantry Brigade.

The bearer divisions of the 2nd and 1st Field Ambulances were to disembark from transports with their corresponding brigades. A special officer for water duty was detailed to accompany the 2nd Field Company, Engineers. No provision was made for landing any portion of the tent divisions of the ambulances to form a field hospital.[1]

The medical order to the "clearing hospital" instructed that it would be

> established near the beach, where all wounded will be collected. The Commanding Officer will select a divisional collecting station as near the rendezvous as possible, but will not visit units unless absolutely necessary.

Casualties would be "removed from the beach under Naval arrangements, serious cases to hospital ship *Gascon*, slight cases to *Clan Macgillivray* and other transports which will be selected."

[1] The premise on which was based this quite unusual reversal of the tactical disposition of medical units was the expectation that the operations would result in either complete success and a rapid advance (the prevailing note in all the arrangements) or in complete failure. In the former case the clearing hospital would be open in its right place and the tent divisions in their most effective condition, namely, closed and ready to move, while a disaster would be lessened by their absence.

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Medical orders for the N.Z. & A. Division were issued on the 19th and provided that two medical officers from each tent sub-division should accompany the bearer divisions ashore; but the tent divisions themselves would not land.

Naval arrangements

On April 19th naval orders for embarking wounded from the Anzac landing were issued by the rear-admiral—one hospital ship for "serious" and two transports for "other cases."

> As soon as the disembarkation of the covering force is complete, and the pinnaces have returned to the battleships, each battleship is to equip a pinnace[8] as a hospital boat.
>
> An officer of H.M.S. *London* is to be in charge of the naval embarking arrangements. The Senior Medical Officer of the *London* will be the "Senior Medical Officer."
>
> One sick-berth rating is to be provided for each pinnace . . . 6 hands and a coxswain.
>
> Service trawler No. 705 . . . will be employed in towing the launches from shore to transports. Ships are to be prepared to equip a second pinnace at short notice.

This allowed three boats, each capable of carrying twelve "cots." The trawler was to disembark General Bridges, tow horseboats to the northern part of the beach, and "subsequently be employed on Red Cross work." There does not appear to have been on the medical side any opportunity for co-operation "for the intimate study of combined problems."[9]

D.M.S. suggests increased provision

In the meantime certain action had been taken by G.H.Q., M.E.F., to which it is necessary to refer, since—though it was never fully carried out, and therefore influenced but slightly, if at all, the actual course of evacuation at Anzac—it has been prominent in description and debate in connection therewith. On April 18th, five

[8] Definition of types of "small craft":—
Cutter (30–34 feet) carries 32–42 men and 6 additional as crew.
Horseboat (36 feet) carries 110 men and 6 additional as crew.
Launch (42 feet) carries 92 men and 8 additional as crew.
Lifeboat (28 feet) carries 28 men and 5 additional as crew.
Pinnace (36 feet) carries 65 men and 8 additional as crew.
Steam Launch.—The largest type of steamboat carried by warships.
Steam Pinnace and Picquet Boat.—Smaller types of steamboat carried by warships.
Tow.—The number of boats, barges, or lighters, secured to one another, that can be towed by one steamboat.

[9] *Naval Operations*, by Sir Julian Corbett, *Vol. II*, p. 175.

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days before the date fixed for the landing, the D.M.S., M.E.F. (Surgeon-General Birrell), arrived with the D.A.G. (Brigadier-General E. M. Woodward) and D.Q.M.G. (Brigadier-General S. H. Winter). Having been apprised of the medical situation, the D.A.G. in a memorandum to the Chief of the General Staff (Major-General W. P. Braithwaite) stated that "the provision for the evacuation of casualties from the force appears to be altogether inadequate," and that without certain additions "it will be impossible from a medical point of view to commence serious operations." With the arrival of the senior administrative officers the General Staff became more actively interested in evacuation. A cable was also received on the 18th from the Director-General of Army Medical Services at the War Office to the effect that heavy casualties must be expected. It was at last realised by the General Staff that the solution to the problem of the lines of communication lay in the use of the line-of-communication units. Another cable was sent to Alexandria calling urgently for the two stationary hospitals and medical dépôt.[10] These were embarked by the transport *Hindoo* on the night of April 20th. The use of Lemnos as an advanced base for wounded, if considered at all by General Headquarters, Mediterranean Expeditionary Force, was not seriously entertained. Instead, reliance was placed on an extended application of the policy of evacuating by "returning empties" (in the present instance steamers, and not land transport) to the base; and on overwhelming success in the operations, after which the tent divisions of field ambulances and such stationary hospitals as might be available would be landed.

A scheme for five additional transports was submitted by the D.A.G. The *Lützow* ("200 serious and 1,000 slight cases") and the *Ionian* (100 and 1,000 respectively) were named for "Anzac," and the *Aragon* and *Dongola* (each for 400 serious and 1,500 slight cases) and *Southland* (420 serious) for Helles. This provided in all for 5,500 casualties at Helles and (allowing 500 for the hospital ship *Gascon*) 4,200 at Anzac, a total (on paper) of 2,400 serious and 7,300

[10] On April 4 the D.M.S., M.E.F., had asked for these units.

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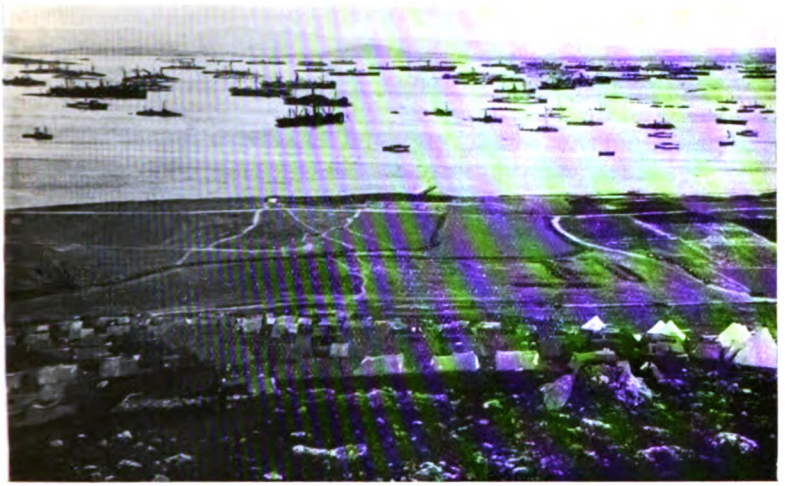

19. PART OF MUDROS HARBOUR IMMEDIATELY BEFORE THE LANDING

The tents in the foreground are those of the French force.

Admiralty Official Photograph.
Aust. War Memorial Collection No. G547.

20. "WHITE" AND "BLACK" SHIPS

Troops practising at Lemnos for the Anzac landing. The vessel on the right is a hospital ship; those on the left are transports.

Lent by M. Rene de Marigny.
Aust. War Memorial Collection No. C2154.

To face p. 124.

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21. THE EVE OF THE LANDING

Battleships leaving Mudros Harbour. H.M.S. *Queen Elizabeth* in the distance.

Lent by Warrant Officer W. C. Copperthwaite, 6th Bn.
Aust. War Memorial Collection No. A2719.

22. TROOPS LANDING AT ANZAC, ABOUT 8 A.M., 25TH APRIL, 1915

Transports can be seen in the background and two of the warships' steamboats in the middle distance.

Lent by A. P. Joyner, Esq.
Aust. War Memorial Collection No. A1090.

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slight cases for the two landings. Two additional "tows," each of three launches—equivalent to 72 "cot" cases—were (again on paper) to be provided by the navy. This scheme was approved by the Chief of Staff and the D.Q.M.G., and also, for the navy, by the "Director of Communications in Chief." It was laid down that the ships, when loaded, would not be able to leave in less than forty-eight hours.[11]

Projected increase for Anzac fails

So far as "Anzac" was concerned, the new scheme was a dead letter. It was difficult enough to carry out the arrangements already decided on; and, while No. 15 British Stationary Hospital was available for staffing and equipping the new transports allotted for the wounded from Cape Helles, No. 1 Australian was serving the whole force on Lemnos and No. 2 had not arrived. Moreover, an impetus was upon everyone urging to immediate preparation for the now imminent attack. It is impossible to describe the complexity of the combined task of disposing in the battleships, destroyers, and troopships the men, horses, vehicles, and munitions of the vast force, so that the whole might be thrown ashore on defended open beaches at an exact moment unexpected by the enemy. The sick, moreover, were accumulating in the crowded transports, and the assistant-directors of medical services were calling for clearance; but No. 1 Australian Stationary Hospital was over-full, and no hospital ship was available. On the 20th the D.M.S., M.E.F., despatched to Colonel Manders, as "S.M.O." of the Anzac Corps, a letter informing him that No. 2 Australian Stationary Hospital would be placed under him "for duty in the *Lützow, Ionian,* or other ships you may select," and that No. 4 Advanced Dépôt of Medical Stores was at his service. This letter was not received till the 22nd. On the same day General Birrell was informed that for the landings the general staff would be in H.M.S. *Queen Elizabeth* and the administrative staff in the transport *Arcadian,* which was to be "in touch" but (in common with other transports), though able to receive wireless messages, would not be able to transmit at all in harbour, and at sea only

[11] The number of wounded to be carried in each transport was practically identical with that of the troops accommodated by it.

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"in conditions of great urgency." He was also informed that, for the landing operation, evacuation of wounded would be controlled by a member of the general staff. On this date the *Hymettus* arrived with No. 15 British Stationary Hospital and No. 4 Advanced Dépôt of Medical Stores.

The landing was finally fixed for the 23rd. A gale which blew during the 21st and 22nd, while it gave respite to the D.M.S., M.E.F., by postponing the landing till the 25th, made up for this advantage by driving ashore the *Hymettus*, impeding the *Hindoo*, which was still on her way from Alexandria, and holding up transhipment. Nevertheless the personnel and stores in the *Hymettus* were transferred on the 23rd to the *Caledonia*, *Aragon*, and *Dongola*, so relieving the ambulance personnel of the 29th Division; those of No. 4 Dépôt of Medical Stores also became distributed among the various selected transports.

Gale supervenes

On the 22nd General Birrell despatched to the War Office his arrangements to date, which provided (on paper) for 9,700 wounded on the lines already indicated but presumed the arrival of the *Hindoo* in time. Future arrangements were outlined on the basis of a service of four hospital ships between Gallipoli and the bases (Egypt and Malta), clearing from three stationary hospitals to be established "according to regiments, on the Peninsula." No. 1 Australian Stationary Hospital at Lemnos was "impossible to move owing to the infectious cases held." Of the two additional hospital ships for which he had constantly striven, one had been promised in the fine *Guildford Castle* from the Indian service, which was being fitted for Europeans and staffed with Australian nurses from No. 2 Australian General Hospital. The *Osmanieh* was to be the second.

Report by D.M.S. to War Office

On this day there was held at corps headquarters in the transport *Minnewaska* a conference attended by both assistant-directors of medical services and by the clearing hospital and field ambulance commanders. The A.D.M.S., 1st Australian Division, strongly criticised the general arrangements, pointing out that the army corps estimate of

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casualties, as represented in the preparations actually made, was still equivalent to only five per cent. Along with the D.A. & Q.M.G. (Brigadier-General R. A. Carruthers) he obtained an interview with the D.M.S., M.E.F., in which he presented the situation in connection with the accumulation of sick, particularly of infectious cases, in the transports, and the inadequacy of arrangements made for the lines of communication. In regard to the former, General Birrell stated that no further accommodation could be provided on Lemnos, since no buildings or tents were available, and, as to the latter, that No. 2 Australian Stationary Hospital had been cabled for, and, when it arrived, personnel would be placed in certain transports which had been selected and of which corps would be informed.[12]

On the same day also the D.A. and Q.M.G. of the Anzac Corps wrote to General Headquarters stating that

D.A. and Q.M.G. resumes responsibility

as the D.M.S., M.E.F., has now arrived, the necessity for Colonel Manders to act in his stead no longer exists. As Colonel Manders will have to accompany his Division, it will be impossible for him to continue to carry out his duties of D.M.S. (*sic*) with the Army Corps Headquarters in addition to his duties as A.D.M.S., Division.

This matter having been referred to General Birrell, he instructed that in future all orders should be sent to corps headquarters.[13] The meaning of this is that the D.A. and Q.M.G. of the Corps resumed responsibility for the medical arrangements, so far as they would have been discharged by a D.D.M.S. on the Corps Staff.

On April 23rd the 1st Australian Divisional staff transferred to H.M.S. *Prince of Wales*, corps headquarters being in H.M.S. *Queen* and the transport *Minnewaska*. The A.D.M.S., N.Z. & A. Division, remained with that division's

[12] The D.M.S., M.E.F., adopted, it would appear, a strictly departmental attitude toward the divisions. This was unfortunate in the exceptional circumstances, which demanded close co-operation and knowledge by all formations and units of the arrangements made for others. The divisional medical officers were deliberately given only those orders which concerned their own divisions.

[13] Colonel Manders in his personal diary on this date notes: "With the D.M.S., trying to settle hospital ships. . . . It is not really my job, but his." The A.D.M.S., 29th Division, had declined responsibility in connection with transports. Colonel Manders also expressed the opinion that Mudros should be a base for light cases, "being four hours off instead of forty-eight." This suggestion was referred to General Birdwood, who agreed, but "said it was a G.H.Q. job and too late to change."

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headquarters in the transport *Lützow*, and on that day held a conference of his commanding officers. Sir Ian Hamilton and the General Staff of G.H.Q., M.E.F., transferred to the *Queen Elizabeth*, and left for Helles. The *Arcadian* remained at Mudros.

Sickness at Mudros

During the fortnight covered by the foregoing account, special training, as intensive as circumstances permitted, was carried out. Landings were rehearsed in detail, as was also transfer from ships to tows. Meanwhile in the crowded transports the usual transport diseases had been increasing, chiefly measles, influenza, pneumonia, and other respiratory infections.[14] A case of small-pox occurred in the *Arcadian*. Diarrhœa, with clinical features suggestive of infection rather than irritation, is also recorded.

Slight cases were treated in ships' hospitals; serious cases were sent, when transport was available, to No. 1 Australian Stationary Hospital. This unit had, in the teeth of great difficulties, built up a fine hospital, expanding to 400 occupied beds. "Our camp looks most imposing. We have 34 marquees, 2 open tents, and 20 bells; 9 marquees a little apart for isolated cases. Ward tents are pitched, two or three together, with one of the larger sides of each interlaced with that of the other." A small bacteriological laboratory was fitted up; and in the fine operating theatre semilunar cartileges, herniæ, appendices, and many empyemata and mastoids were dealt with. The X-Ray apparatus was made available by the arrival on April 26th of the A.I.F. radiologist, Major S. S. Argyle, who brought a "Lister generator" which ran both X-Rays and seventy electric-light bulbs. He brought also an ambulance waggon the landing of which, however, was—very unfortunately, it must be said—refused on the ground that it was not on the establishment authorised for a stationary hospital. On April 14th a clearance had been made to Alexandria by the transport *Osmanieh* of 183 cases from the hospital and transports, principally pneumonia and measles, but by the date of the attack the hospital was

[14] A peculiar epidemic of "rheumatic influenza" is recorded—sometimes diagnosed as "rheumatic fever"—which persisted on to the Peninsula.

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again full and the situation had become acute. The difficulties in connection with local clearance of sick were greatly enhanced by the shortage of small craft, the D.M.S. and A.D.M.S., M.E.F., being practically confined to the transport *Arcadian*.[15]

D.M.S. drafts "orders"—but *Hindoo* too late

On the 24th, the eve of the actual landing, General Birrell drafted his orders.[16] Their distribution did not extend outside G.H.Q., M.E.F. The fact, however, that, when the *Hindoo* with her medical units arrived, four instead of two transports were to be equipped, and also their names, had been made known by letter to the Anzac Corps. Only two transports had, however, as yet been equipped for Anzac, and these gave effective provision for a casualty list of less than seven per cent of the force. On the selected transports the medical personnel were without orders defining their duties in regard to such matters as reception, classification, and any necessary redirection of wounded.

The *Hindoo* arrived off Lemnos on the night of the 23rd, but remained outside the boom, and the orders of the D.M.S., M.E.F., for the units on board were not received till noon of the 24th. Strenuous efforts made by his A.D.M.S. to obtain small craft from the rear-admiral were unavailing, and transfer to the selected transports was effected only in the case of the *Seang Choon*—one of the two transports selected under the earlier scheme, not under the extended proposals. She received three medical officers from No. 16 British Stationary Hospital and fifteen other ranks from No. 2 Australian Stationary Hospital. The effect of this was merely to release the divisional troops who had previously staffed her. With the *Arcadian*, the *Hindoo* remained anchored on the

[15] It may be noted here that on April 26 clearance was effected by the *Osmanieh* of most of the cases held in No. 1 A.S.H., which thereafter for weeks remained "empty, swept, and garnished," and capable of rapid and extensive expansion.

[16] These named the two additional transports for Anzac as the *Lützow* and *Ionian*, and laid down arrangements for staffing all the selected transports from the units in the *Hindoo*. His calculations were based on 9,700 wounded for the two landings, covering a period of two or three days. This would represent approximately 17 per cent of the troops. One tent sub-division was to be landed with each covering force, and the remainder of the tent divisions and equipment of the clearing stations as soon as possible. The fundamental feature of the scheme was the classification of wounded into light and serious cases and their distribution accordingly. The former was left to the divisions, the latter to the navy.

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night of the 24th in Mudros Harbour, as did also the hospital ships *Gascon, Sicilia,* and *Guildford Castle* and the transport *Osmanieh,* the two last named having arrived that day.

In the soft afternoon and evening of a perfect spring day—the 24th—there moved out in procession, stately and tremendous, battleships, destroyers, and transports, with troops for the various landings,[17] and passed to their respective rendezvous, those for Helles lying during the night off Tenedos, those for Gaba Tepe off Imbros.

[17] The *Goslar* and other troopships with the New Zealand and 4th Aust. Inf. Brigades left the harbour during the forenoon of the 25th. The transports of the 1st and 2nd Aust. Inf. Brigades left Mudros in the morning of the 24th and lay all day in Purnea Bight, moving to the rendezvous during the night.

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CHAPTER VIII

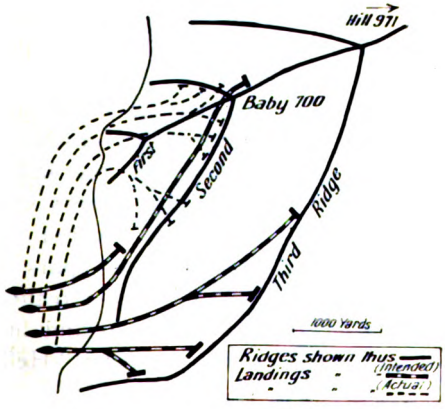
THE LANDING AT GABA TEPE

ALTHOUGH the confusion of the landing in extremely difficult country, and the bitter nature of the fighting caused much difficulty in the collecting of wounded, yet, mainly through the fine courage and endurance of the bearers, the clearance to the beach was rapid. The concentration of all casualties at the Cove caused congestion which led to the cessation of attempts at classification and to casualties being sent off to the transports earlier than had been intended. In the Battle of Krithia, the congestion and delay in the clearance of the wounded on shore were, through no fault of the small medical detachment sent with the 2nd Australian Brigade, greater than at Anzac.

* * *

The Landing—3rd Brigade

At 4.30 a.m. on April 25th, in the critical hour between moonset and daylight, the 3rd Brigade effected a landing, captured the "First" ridge, and chased the enemy inland.[1] During the long approach in darkness the tows had converged, so that on the beach battalions became mixed up. Of more serious importance was a deflection of a mile to the north caused by the tide. These mishaps, the peculiar intricacy of the terrain, and the imperfection of the maps, combined to confuse the advance and dislocate the tactical scheme.



[1] The landing was at first opposed by only a single company.

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Most serious was the failure to capture Gaba Tepe, from which the beach was observed and shelled. The consequence would have been disastrous but for the existence of a small indentation in the coastline some 800 yards in length with shingly beach twenty yards wide at high water. This small bay, which has gained a place in history as "Anzac Cove," was protected in front by the sheer First ridge, "Plugge's Plateau," and at each end by the terminal spurs of that ridge, which on the left formed the headland of Ari Burnu. The Cove became at once "the Beach"—the point from which diverged the fighting units and to which automatically converged the wounded. Here under shrapnel-fire the remainder of the force landed. The casualties in the boats and on the Beach were moderate. It was chiefly the endeavour to reach the objective of the covering force (the "Third" ridge),[2] and the homeric struggle that followed to hold the "untenable" position achieved, that gave Australia "Anzac Day." The nature of the terrain was an important factor both in the fighting and in the collecting of wounded. Not only did the topographical accident of the cove determine the course of medical evacuation, but in the march of events, when instead of the success that might well have shortened the war an appalling disaster threatened, it made possible the compromise that spelt "Anzac."

The "Anzac" area

The slope between the Beach and the ridges widens out north of Ari Burnu to half-a-mile or more. On their seaward side the hills are for the most part worn by winter storms into cliffs or sheer precipices scored by steep ravines. The crest of the range and its spurs form the watershed for somewhat more ambitious streams, some of which run deviously, between the steep and broken ridges forming the inland limbs, to the sea near "Hell Spit" and Gaba Tepe.

[2] Walking over the heights at Ari Burnu four years after the landing, a Turkish staff officer said "it would have been almost impossible to have reached these objectives even in an operation of peace time." *Australian Official History, Vol. I, p. 603.*

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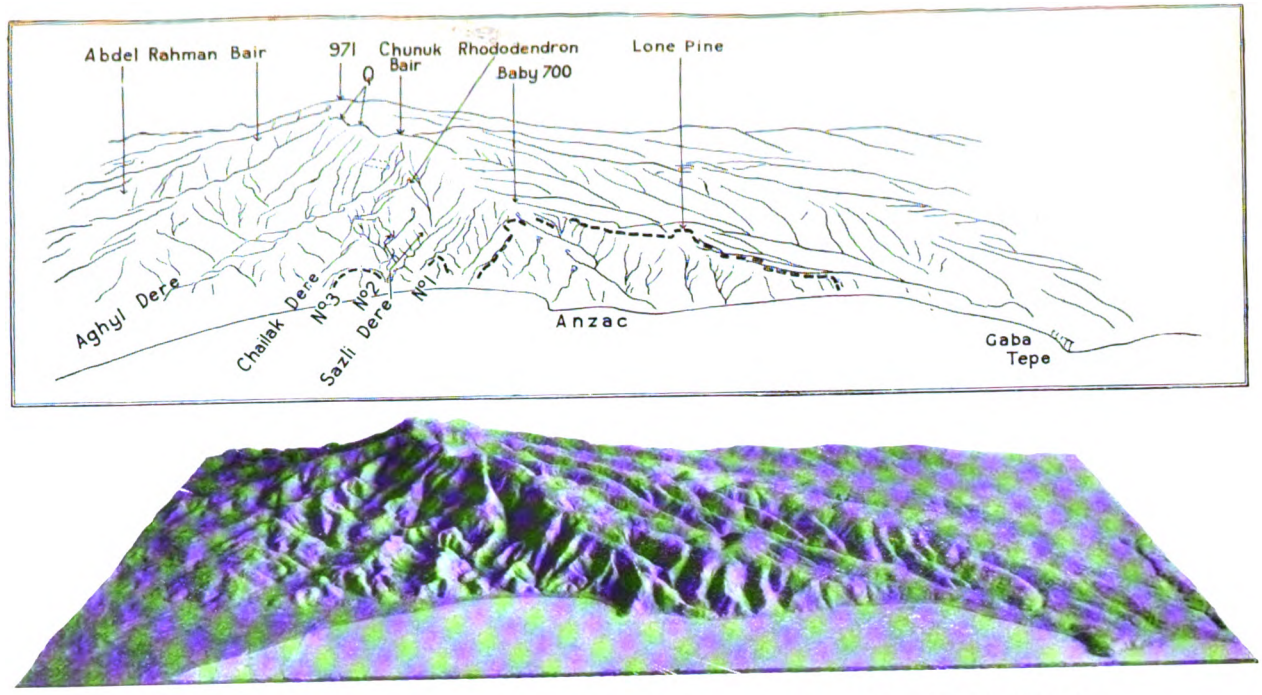

23. Sari Bair, showing the Anzac area, April 1915, and three posts on the left

Reproduced, by permission, from a model made by Mr. Justice Ferguson.
Photographed by N.S.W. Government Printer.

To face p. 132.

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24. Personnel of the 1st Australian Casualty Clearing Station on Anzac Beach, 27th April, 1915

Lent by Colonel W. W. Giblin, A.A.M.C.
Aust. War Memorial Collection No. A1498.

25. The 3rd Battalion aid-post in Shrapnel Gully on 26th April, 1915

Aust. War Memorial Official Photo. No. G920.

To face p. 133.

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Save for some open patches, highly dangerous to cross under fire, the country was everywhere thickly scrubbed with arbutus, dwarf holly-oak, and pine, from three to twelve feet high. Observation was possible only from the crests, and, except along occasional goat-tracks, passage had to be forced. The fighting was chiefly on the ridges. The valleys became the natural highways between the Beach and the fighting front. The beds of the streams, thickly beset with brush, were in parts the only possible thoroughfare.

The rush of the covering force took it as far as the "Second" ridge and along the central spur[3] up to the first peak ("Baby 700"), which commanded the whole position. Here resistance hardened: shallow rifle-pits were dug, forming an irregular defensive line. Scattered parties fought their way toward, and at parts some reached, their final objectives, losing heavily.

The main force lands

Landing between 5 and 7 a.m., the 2nd Brigade was diverted to fill the gap on the right caused by the deflection of the tows.[4] The 5th, 6th, and 7th Battalions moved up from the rendezvous in "Shrapnel Gully"[5] to the open "400 (feet) Plateau." Here each company, as it topped the crest, was met by fire from the reinforced enemy, and became involved in the fierce struggle that during the day drew almost half the Australian force to this front. Between 8 and 9 a.m., the 8th Battalion dug in on "Bolton's Ridge" (the continuation of the 400 Plateau) to form a right defensive flank.

The 1st, 2nd, and 3rd Battalions of the 1st Australian Brigade, together with the Auckland Battalion, landing between 9 and 12 a.m., were sent at once to parts of the front hardest pressed. The 4th Battalion was held as divisional reserve.

[3] Various elements of which became known as "Plugge's Plateau," "Razor Edge," "Russell's Top," and "The Nek." *See Sketch at p. 134.*

[4] "By 7.20 a.m. nearly 8,000 troops had been put ashore." (Report by Rear-Admiral Thursby.)

[5] The most considerable "stream"—though it was usually dry—within the area of operations entered the sea just south of the cove. It was known at first as "the long gully," its lower end being called, from the first day, "Shrapnel Gully."

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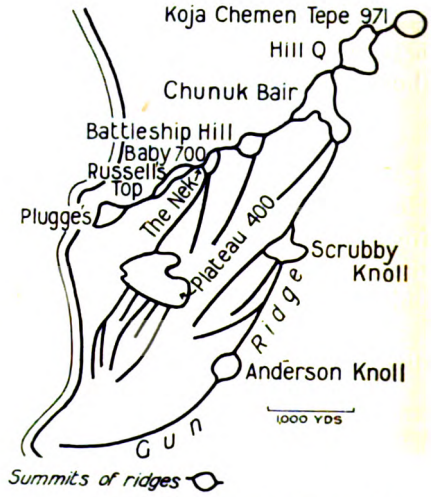
The 4th Australian Brigade (corps reserve) and the remainder of the New Zealand Brigade arrived late at the roadstead; disembarkation of the latter began about 4 p.m., but was considerably delayed. The battalions were thrown into the struggle at the apex of the Second ridge—Baby 700 and "Russell's Top." The 4th Brigade disembarked during the night and the next day.

The course of the battle

The course of the fighting must be summarised briefly. The troops forming the right defensive flank on Bolton's Ridge remained stationary throughout the day. Along the northern end of the plateau ("Johnston's Jolly") and on "MacLaurin's Hill" a defensive line had also been formed by the covering force, whose commanding officer, Colonel Sinclair-MacLagan, had decided at an early hour that the "Third" ridge could not be gained. Between these two forces, about the 400 Plateau and its spurs, there was left till late in the day a gap, through which battalion after battalion passed and spread out in futile advances, broken up and decimated on the open plateau. A scattered advance-line was, however, formed along the forward edge of the plateau, on which some of the parties on "Pine Ridge" retired. This held on till evening, scourged with shrapnel from the heights and Gaba Tepe, and with rifle and machine-gun fire from the ridges beyond. After dark, it fell back, by orders, on the main line in rear.



The Sari Bair range and its southern spurs.

Along the upper end of the long gully and on the slopes of Russell's Top, The Nek, and Baby 700 the

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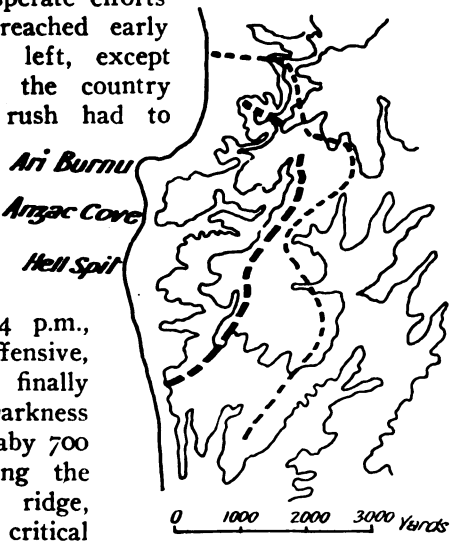
fighting consisted of desperate efforts to hold the positions reached early in the day. On the left, except on "Walker's Ridge," the country occupied in the first rush had to be abandoned, and thereafter, except for three detached posts along the shore, Walker's Ridge formed the flank. On Baby 700, about 4 p.m., the Turkish counter-offensive, begun about 10 a.m., finally thrust back the line. Darkness found the force, with Baby 700 lost, precariously holding the crest of the Second ridge, the situation being so critical that re-embarkation (which was actually proposed) was not carried out chiefly because of the impossibility of attempting it.



Contours 50 metres.

Positions temporarily attained on April 25 shown thus – – – –. *Positions occupied during night of April 25* – – – –.

Landing of regtl. medical detachments

The regimental medical officers and their establishments landed with their battalions. Hardly any opportunity had been presented in the transports for consultation between field ambulance and regimental medical officers, and the latter had little knowledge of the medical arrangements in general. In the covering brigade, medical officers, besides their eight stretchers, took only "medical companions," surgical haversack, and waterbottle from the official equipment. All, however, loaded their bearers with miscellaneous equipment and stores. In some units of the 2nd and 1st Brigades medical panniers were taken. The plans made by regimental medical officers for working their bearers had diverged along two lines. In view of the likelihood of considerable dispersal, the majority had arranged for the bearers to follow the companies, but retained with themselves their

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orderly corporal and "A.A.M.C. attached": some (on the other hand) held it more important to keep control of their bearers and work them from the "aid-post." Events in most cases settled the question in favour of dispersal. Almost all bearers of the 3rd Brigade on landing became scattered with the companies over the front, and lost touch with medical officers, who, waiting behind to attend wounded men on and near the Beach, also lost touch with battalions. Moving up in the direction of the fighting, and meeting streams of wounded, the medical officers collected some bearers and established aid-posts, some more and some less advantageously placed at the head of the gullies, close behind the gradually forming battle-front. The battalions of the 2nd Brigade landed in better order, but here also most of the bearers followed the companies, and medical officers made the same mistake of losing touch. Only the R.M.O. of the 8th Battalion, which dug in as a complete unit on Bolton's Ridge, was able to clear his own unit systematically. The R.M.O., 6th Battalion, followed the scattered parties of his unit across the 400 Plateau, but, finding himself unable to be of use, also got back to a position behind the defensive line. The medical officers of the 1st Brigade were able to keep their bearers together and to select suitable spots for aid-posts; those of the 1st and 3rd Battalions in the long gully became important medical positions.

R.A.P's

By noon all regimental medical officers had established themselves. As day advanced, walking wounded were directed to the Beach; serious cases in large numbers, brought in by regimental bearers or helped by the less severely wounded,[6] were held in aid-posts, awaiting clearance by the ambulance bearers.

The bearer divisions[7] landed with their respective brigades. No medical equipment was taken except surgical haversacks and waterbottles. The instructions of the A.D.M.S., to clear "their own brigades," had left wide scope for initiative.

The field ambulance bearers

[6] Strict orders had been issued by General Birdwood against the doing of this by unwounded men, and for the most part these were obeyed.

[7] Each of three officers and 27 squads of four, taking 36 stretchers.

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The 3rd Field Ambulance participated in the unique thrill of the approach in the dark, landing with the covering force north of Ari Burnu, and losing in the operation three killed and fourteen wounded. At daylight, after attending wounded on the Beach, officers and men made their way under fire over the open, to reach "dead ground" behind positions captured. Here two "collecting posts" were established, one on the extreme left, another in a position somewhat nearer the cove, approved by the A.D.M.S. Working with the regimental bearers, they collected wounded from the units holding the left flank and from the heights above it. About noon the post on the extreme left became untenable owing to the retirement of the troops, which, however, was delayed until by a hurried effort the wounded had been removed. The situation was saved by using abandoned boats, which were manned by bearers, many wounded being thus taken to transports, and others picked up by the navy. The remainder in the meantime were carried along the Beach round Ari Burnu to the cove. The flank was left; a headquarters was formed in a hollow in the hill above the cove, where the 1st and 2nd Field Ambulances were already established, and a fresh start was made.

The bearers of the 2nd Field Ambulance, landing about 6.30 a.m. north of Ari Burnu, assembled at the cove, whence, with no very definite plan of action, squads set out under the bearer captains up the long gully.

The 1st Field Ambulance landed at the cove at 9.30 a.m. They found "streams of wounded arriving, mostly walkers," and part of the personnel was accordingly detained by Colonel Howse to assist on the Beach.

All three units concentrated their efforts chiefly on the long gully (afterwards known as Shrapnel and Monash Valleys) and its branches. Sections became broken up, and throughout the day ambulance bearers—like those of the battalions—worked to a great extent "on their own."

C.C.S. established on Beach

The A.D.M.S., 1st Australian Division, landed with divisional headquarters at 7.30 a.m.[8] Wounded were already accumulating on the Beach, and their disposal became an urgent matter. In

[8] The A.D.M.S., N.Z. & A. Division, landed at 10 a.m. and established himself at the north end of the Beach.

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the absence of corps or army representatives it was to Colonel Howse that fell the duty of establishing the casualty clearing station—now representing both field hospital and evacuating centre—and of arranging for the care of the wounded, serious cases and slight, until cleared from the Beach. To this task he devoted his utmost energy. The extent of his responsibility had not been defined; the Beach was a weak link in the chain.

At the southern end of the cove he selected on the Beach an area twenty-one feet square, which was partly protected by "MacLagan's Ridge." At 10.30 a.m. the Casualty Clearing Station[9] landed, and by noon was hard at work attending wounded. The A.D.M.S., N.Z. & A. Division, established a dressing station at the northern end of the Beach.

During the forenoon (contrary to instructions, but, as at Helles, inevitably) men who had been wounded in the boats and on the beaches got away, some 300-400, mostly "walkers," being sent off or taken from various parts of the Beach in returning boats.

Collection of wounded

From about noon of April 25th the work of the medical service at Anzac was dominated by the fact that the failure of the force to achieve its object involved some retirement. In the half or three-quarters of a mile between the precarious security of the defensive line along the Second ridge and the farthest points reached lay an area over which the battle flowed and ebbed—a scene of desperate fighting by detached parties, who were ultimately forced to retire before dusk in face of the Turkish counter-attack. At nightfall the enemy closely encompassed the force.

It was chiefly in the ravines and scrub of the ridges close in front of the defensive line and during the latter part of the day that casualties occurred, and they were widely scattered. The stretcher-bearers could not reach them all. The lightly wounded for the most part made their own way in, as did also some whose wounds were serious; others were helped by comrades when withdrawing. The great majority were got in, but many were left. When night fell, some hundred or more wounded men lay in No-Man's Land, where

[9] Four officers and 59 other ranks, equipment including 200 stretchers.

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they had fallen or were sheltering under cover awaiting help that could not reach them. Some were got in afterwards. The four prisoners who were taken by the Turks in this battle did not include any of the men who were lying out wounded.

Systematic clearance was possible only behind the gradually defining defensive line. Here ambulance bearers worked out routes to the Beach. No advanced dressing stations were formed, and no attempt was made to concentrate wounded, except to the Clearing Station. For the most part bearer officers and N.C.O's and their squads, spreading over the area, searched the valleys and hillsides or responded to the call of "stretcher-bearers"—honourably encroaching on the dangerous domain of the regimental bearers in the fighting front, which, indeed, became common ground.

It was not, however, till late in the day—in some instances not till the next—that touch was established with the regimental medical officers. As a consequence regimental bearers, during the forenoon to some extent, and in the afternoon generally, carried back all the way to the Beach, thus being diverted from their legitimate task of rendering first-aid and removing wounded from the battle-zone to safety behind the firing line.

As day wore on the situation cleared somewhat. Messages[10] from regimental medical officers arrived at the clearing station. Collecting became more systematic, but a great cause of confusion still lay in the fact that the place-names of Anzac were yet to be born. The vague map-references sometimes given in messages were almost useless.

While the course of the fighting determined zones of collecting and evacuating, the topographical features divided the fighting front roughly into three sectors, with special routes radiating naturally from the cove, to which all roads soon led.

Natural divisions—Left flank.

The left flank was marked off by the central spur running from Ari Burnu to Baby 700. From 4.30 p.m. medical arrangements for this flank fell to the N.Z. & A. Division.

[10] Information received through the official channels of communication (D.H.Q., brigades, and battalions) regarding accumulations of wounded was (as always) belated.

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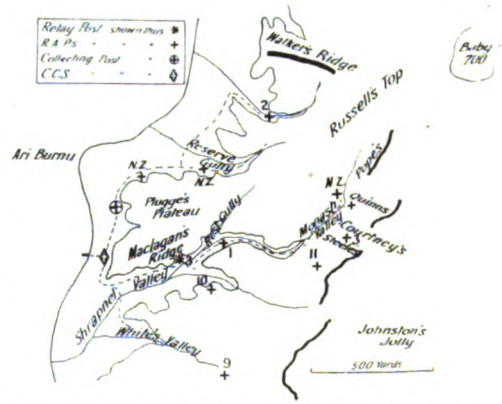
Centre

A central sector included the watershed and head of the long valley, the left branch of which (known later as "Monash Valley") lay directly beneath Baby 700. Throughout its length this branch was open to direct rifle and machine-gun fire from the slopes of "Battleship Hill." On the crest of its precipitous right bank, which rose 100 feet or more above the bed and was overlooked and commanded from front, left, and rear, rifle-pits were dug during the 25th and held thereafter at great cost and by desperate fighting. These were in the positions which later, as "Pope's Hill," "Courtney's," "Quinn's," and "Steele's" Posts, held the gateway to the heart of Anzac. Here and on the hillsides of the range it was difficult during daylight even to communicate with the firing line. It was impossible in most parts to bring up stretchers or to carry back; the only way of leaving the line was to run, crawl, roll, or be dragged to the edge of the slope and thence slide down the cliffs.



Medical organisation, northern half of Anzac, April 25–26. Numerals represent the corresponding battalion aid-posts.

Down the right branch of the gully ("Bridges' Road") passed the wounded brought from the southern end of MacLaurin's Hill and Johnston's Jolly or were lowered precariously down the steep cliffs of the "Razorback." Monash Valley and Bridges' Road met at a point some three-quarters of a mile from the top of the former, the main valley (Shrapnel Gully) passing thence for about half-a-mile to the sea. The carry was exhausting in the extreme. Though systematic relays were not organised, medical positions were

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soon established in two echelons: (*a*) forward collecting-posts near the head of the valley, whence the squads carried through to the Beach; (*b*) detachments at halting-places half-way down the valley where water was stored, hot bovril and tea made, and food prepared.[11]

In the early hours of the 26th the 4th Brigade took over the top of Monash Valley, and its regimental medical officers worked from one aid-post in the only safe spot, which, situated beneath Pope's Hill, became an important medical position. Their squads carried through to the Beach—"a fearful carry."

Right flank

On the right, south-west of Johnston's Jolly, six medical officers established themselves behind the crest of the 400 Plateau in the short gullies—"White's," "Clarke," "Victoria"—down which passed, in large numbers, the wounded from the plateau and its spurs. The line on Bolton's Ridge acted as a preventive against clearance in front of it, and not a few wounded, who had made their way back to shelter between the spurs of the 400 Plateau, or lay out in the scrub and remained there during the day, were missed in the retreat at dusk. The conditions at night precluded systematic search.

Medical organisation, southern half of Anzac, April 25–26.

April 25—clearance summarised

It is opportune here to "appreciate" the clearance of the battlefield at the Anzac landing. Speaking broadly, it may be said that lack of system was offset by the short distance advanced and the fine physical condition and spirit of the bearers. The 25th was, indeed, the stretcher-bearers' day. At bottom, nothing was of real service to the severely wounded

[11] The R.M.O., 3rd Battalion, early established *liaison* with the 1st Field Ambulance and worked with an effective system of reliefs.

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man but the courage, enterprise, and endurance of those whose duty it was to find him and to carry him to safety. Their worst, and a very serious, handicap was the shortage of stretchers. Quite early in the day (for reasons that will be seen later) the clearing station ceased to replace those taken over with casualties from the bearer squads. Improvised stretchers "proved torture for the patient and difficult work for the bearers, some of whom discarded makeshift stretchers, preferring to carry on their backs." Perhaps the saving in army transport by reliance on improvisation in the medical service may conduce to victory, but the price must be paid by the wounded. Some shortage of dressings occurred, but was only local, replenishment from the clearing station never failing.

On Beach—consequence of failure to advance

News of the course of the fighting received at headquarters during the forenoon made it clear that the expected success might not be achieved. The A.D.M.S., 1st Australian Division, was thus faced with the certainty that, unless special steps were taken, there would be a serious accumulation of wounded on the Beach, which was only partly protected and already becoming congested with the requirements in men, animals, munitions, and stores for a life and death struggle involving 20,000 troops. The Beach could be kept clear of wounded either by retaining them inland or by their rapid removal. For the former alternative (though it was part of the general scheme of the D.M.S., M.E.F.) no arrangement was made at Anzac. Apart from the clearing station, there was no provision for any form of field hospital till the full tent divisions should land, and the placing of the clearing station on the necessarily crowded Beach to serve evacuation rendered it in a great measure unsuitable for the retention of cases, slight or serious, as a divisional collecting station. Owing to the course of events the tent divisions were not landed.[12]

[12] In the situation as it developed at Anzac the selection of lightly wounded and their concentration, as a temporary measure, at some point on shore would have been a perplexing task, and was held by the A.D.M.S., 1st Australian Division, and the O.C. of the Clearing Station (Lieut.-Col. W. W. Giblin) to be impracticable. The fact, however, that such selection was not made entailed the evacuation of many slight cases.

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For removal of seriously wounded the medical tow, not available till the 1st Division was landed, was of very limited capacity, and for the lightly wounded the normal means of transportation, boats "returning empty," would, if the arrangements were adhered to, be barred "till the fighting troops have been landed." In view, however, of the circumstances which might arise, Colonel Howse decided to concentrate his efforts on ensuring the embarkation of every wounded man as quickly as possible. From an early hour, therefore, acting as his own medical embarkation officer, he urged on the naval beachmaster that the scope of clearance should be extended, and about noon, after all available troops had landed, obtained permission for clearance "from any part of the Beach"—which, however, by force of circumstance had already been begun. Though between 1 p.m. and 4.30 p.m. no more infantry transports arrived at the anchorage and no troops disembarked, the landing of stores and munitions went on, under heavy shrapnel, with furious energy. Men and animals all passed along the narrow strip of beach in front of the clearing station, where, by 2 o'clock, some 500 wounded lay. At 3 p.m. a special pier was completed, which took craft of from four to five feet in draft and was available for wounded.

Evacuation of wounded to ships begun

With the assistance of bearer squads the clearing station had at first been able easily to cope with the situation; records were kept, cases classified, hot drinks given, and some urgent surgery attempted. Improvised splints were replaced from the "field fracture box." Stretcher shortage was the chief difficulty.[13]

During the afternoon wounded arrived rapidly, and the proportion of stretcher cases ("liers") increased. From the clearing station they spread over the Beach, and by 5 p.m. the full consequence of the failure to advance had become manifest. Little evacuation of serious cases had been possible during the afternoon, partly because of the danger from shrapnel to the wounded, but chiefly because the medical tow

Congestion of serious cases

[13] The 200 stretchers that were landed soon disappeared. Those which were passed on with cases to the boats were not returned or replaced.

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was wholly insufficient for the numbers presenting. Through proper recognition of the military needs, little use had so far been made of boats "returning empty."

It must be borne in mind (to quote the naval beachmaster) that it was hoped that sufficient ground would have been gained at the outset to place the field hospital in some convenient sheltered nullah away from the turmoil and confusion on the Beach, and it was not expected that large numbers of wounded would have to be re-embarked on the first day.

About 5.30 p.m. returning tows were made available, and evacuation from the clearing station seriously began.[14] The chief difficulty now lay in transportation to the pier, a task for which clearing station personnel were supplemented by military "fatigues." On the pier the wounded were taken over by the naval beach party. Between 5.30 and 8 p.m. 600 cases were cleared from the station. Evacuation was similarly taking place from the New Zealand dressing station. At dusk (sunset being then at 6.48) shelling ceased.

5.30 p.m. "Returning Empties" made available

Classification of wounded into "light" and "serious" cases by the affixing of the official white and red "tabs," the theoretical basis of the scheme of evacuation, was by this time quite impossible, as was the making of nominal rolls. Ambulance, regimental, and artillery medical officers assisted, but "it was like trying to classify a crowded hall with others pouring in." For a time the needs were met, but, as night wore on, removal from the Beach fell seriously behind the incoming streams.

but unequal to the situation

About 9 p.m. (to quote again the naval beachmaster) I became thoroughly alarmed at the state of affairs. The Beach at this time was a never-to-be-forgotten sight; the number of wounded lying about practically stopped all work on the Beach. It was decided that at all costs effort must be made to relieve the congestion, and orders were given that all tows, after emptying their contents, would transfer wounded to the ships.[15]

[14] The naval aspect of this evacuation is seen in the report of the landing by the rear-admiral: "Through the number of these (wounded on the Beach) the process of disembarking troops and embarking the wounded had to go on side by side." The question whether this re-embarkation interfered in any material degree with the disembarkation of the N.Z. & A. Division—whose troops, both on general military principles and in view of the particular situation at the time, should have been rushed with the utmost vigour and speed into the swaying battle—is without doubt a very serious one, since the retention of Baby 700 and the 3rd Ridge might have resulted in much more than the mere winning of this battle.

[15] The disembarkation of the N.Z. and 4th Australian Brigades was not effected with the celerity that the urgent need in the late afternoon demanded. It is possible that the general use of "returning empties," permitted after 5 p.m., may

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Clearance from the pier was carried out at high pressure till about 10.30 or 11 p.m. It then ceased, under the shadow of an appalling menace: for from 9 o'clock the question of immediate embarkation of all troops on account of the military situation had been under consideration by the commanders. Wounded accumulated on the Beach to such an extent that "it was with difficulty that in the darkness one could pick one's way between the stretchers covering the whole width of the Beach, at one time for 100 yards or so." About midnight, it having been decided by Sir Ian Hamilton that the Anzac Corps must "hold on and dig in"—Admiral Thursby, indeed, had stated that to re-embark that night was impossible—the evacuation of wounded was resumed. It had been intended—though the task would have been a terrible one—to get all wounded away if possible, and the lifeboats of several transports were specially sent to the Beach. In the meantime the crisis had stimulated initiative, and a solution of the problem of the stretcher cases was found in the use of lighters. Horse barges had been used to some extent since the afternoon. "About 11 p.m.," it is recorded by the naval S.M.O.,

Clearance during the night

> a party of 80 was set to work, and with great effort were able to refloat a large lighter containing kerosene tins of water, which had taken ground early in the day, and with two others left derelict beside the pontoon we were able to ship about 150 stretcher cases besides a large number of walking wounded. These were got away soon after midnight.

The New Zealand and Australian Division had at first sent wounded for embarkation to the Australian Casualty Clearing Station. When the hold-up occurred, four "horse-boats" were procured by the officer in charge of the New Zealand beach station, and 120 cases were got away at 1 a.m.

The fatigue parties worked far into the night, embarking wounded in barges and boats and transferring them to the transports. By 3 a.m. the Beach was clear. Over 1,700 had been evacuated, and, of the last 500 of these, more than half were stretcher cases.

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in some degree have influenced the situation in this respect. There is no evidence, however, that instructions were given for the urgent disembarkation of these troops. The impressing of all tows for the purpose of the wounded took place at 9 p.m., when the urgency had passed and the positions had been lost.

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April 26–28th

Dawn of the 26th found the force clinging to the edge of the cliffs and heads of the ravines and precariously holding an area of some 500 acres almost everywhere overlooked by the enemy. But it had dug in and was in touch with supplies. As a base of operations the Beach had proved tenable and, with lines of communication intact, everything was possible. But the issue was still uncertain, and the fighting of the 26th and 27th was a bitter struggle for existence. These days saw little respite for the stretcher-bearers.[16] The proportion of stretcher cases was large. Regimental officers reassembled their bearers, regained touch with their battalion headquarters, and formed new aid-posts. The trenches, at first mere shallow cuts or isolated rifle-pits, were deepened and connected up. Routes to the Beach improved slowly; the lie of the land became known; and a few names (the first requirement in human co-operation) became current.

Reorganisation

The greater part of the tent divisions of the 1st Australian Division, and all their transport, remained in the ships, as did the senior surgeon of the 1st Australian Casualty Clearing Station and its equipment. But on the night of April 27th the bearers of the 4th Field Ambulance landed and took over the evacuation of Monash Valley—"badly wanted," as were also their thirty-six stretchers.

By April 28th the tactical situation was such as to make possible the reorganisation of the force. The area held was roughly one and a half miles in length; its greatest depth 1,000 yards. The front was now divided into sectors, the N.Z. & A. Division taking over

[16] The following table shows the numbers evacuated between April 25 and 30:—

1915.	Passed through Books.			Evacuated Irregularly or Unrecorded.
	1st A.C.C.S.	N.Z.F. Amb.	R.N.D.F. Amb.	
April 25 ..	800	..	..	670
,, 26 ..	700	250		
,, 27 ..	650			
,, 28 ..	398			
,, 29 ..	..	250	1,310	
,, 30 ..	199			
Total ..	2,756	500	1,310	670

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the left as far as Courtney's Post, the 1st Australian Division the right. Field ambulances were made responsible for clearing definite sectors (not corresponding to the brigade fronts), and their headquarters were removed to the lower slopes of "M'Cay's Hill." Here two tent sub-divisions of the 3rd and some details of the 2nd Field Ambulances, by dint of their own importunity, managed to rejoin their units, dug in, and began to hold a few cases.

Some tent divisions land

Most of the troops were by this time utterly exhausted; many had fought without rest for three days. On the 28th and 29th four battalions of the Royal Naval Division, with their medical establishments, took over part of the line in Monash Valley. Brigades were relieved in turn, the battalions reorganised, and given definite fronts. A roll-call on April 30th revealed losses of 1,385 in the 1st Brigade, 1,681 in the 2nd, and 1,865 in the 3rd.[17] The landing safely accomplished, the worst difficulties of the Beach were automatically resolved. Small craft for evacuation were more plentiful; casualties arrived systematically. The work was still very heavy, and on the 28th the clearing station was relieved for a few days by the tent divisions (landed complete) of the Royal Naval and the 4th Field Ambulances. The New Zealand Field Ambulance cleared its own brigade through a dressing station at the north end of the cove. The staff now available on shore for evacuation was more than adequate. The shortage of stretchers was gradually overcome by the navy and the engineers; in addition to those improvised, there were provided regulation naval stretchers "made of canvas and cane, which are strapped round the body like a straitjacket. In one of these the case could be lowered down the gullies, and they were greatly valued by the bearers."[18]

R.N. and 4th Field Ambulances

The force being now entrenched, attempts were made to improve its chance of holding the position against the inevitable counter-attack. To meet the growing menace to Monash Valley, now

Action of May 2nd

[17] These figures however include some 3-400 who later rejoined their units. At Helles, excluding French troops, the total casualties were 4,320. *See also p. 172.*
[18] From the diary of an N.C.O.

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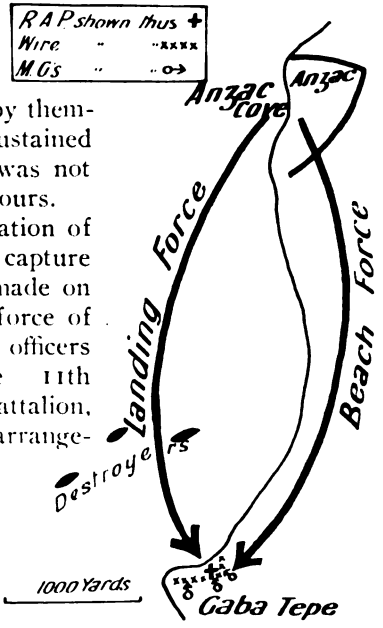
held by small garrisons in the various "posts," and to capture Baby 700, a formidable night attack was planned for May 2nd, to be undertaken by the 4th Australian Brigade, the New Zealand Infantry Brigade, and two battalions of the Royal Naval Division. Medical arrangements were in the hands of the A.D.M.S., N.Z. & A. Division. No relay system had been arranged, but co-operation between regimental and ambulance bearers was more effective. Evacuation was based on the aid-post beneath Pope's Hill. The operation was among the most disastrous ever undertaken by Australian troops, for about 1,000 casualties were sustained and nothing won. Through an underestimation by the General Staff of the time required for the approach march of the New Zealanders, the Australian battalions had to launch their attack before the New Zealanders arrived. The clearance of the first Australian wounded down the narrow valley congested the approach and still further delayed the New Zealanders. In the later stages of the action the wounded were got in with the utmost difficulty, "men with broken legs had to hop in by themselves." Regimental bearers sustained heavy casualties. Evacuation was not completed until twenty-four hours.

Action of May 4th—Gaba Tepe

To improve the tactical situation of the Beach, a belated attempt to capture Gaba Tepe was made on May 4th with a force of 120 men and four officers mainly of the 11th Battalion, the R.M.O., 11th Battalion, being in charge of medical arrangements. A surprise attack at dawn was attempted from destroyers and along the Beach, but, after a landing had been made, the position was found to be impregnable, unless by an



Action of May 4th at Gaba Tepe.

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assault in much greater force. Withdrawal in daylight was carried out with moderate loss. The R.M.O. with his bearers formed under the low cliff an aid-post which gave temporary shelter, and the conduct of the medical personnel received commendation. The adventure itself is of considerable interest in that the collecting of wounded was permitted by the enemy. "The Turks did not fire a shot at the wounded men or those assisting them; the more lightly wounded limped down after the stretcher cases. When they had been towed out the enemy's fire broke out again."

May 5–8th, Krithia

The end of the first week in May found the Mediterranean Expeditionary Force landed and established at two places: but the confident, if somewhat vague, anticipation that, the task of landing once accomplished, a rapid advance across the Peninsula would follow was very far from being realised. Neither at Anzac nor at Helles had the invaders done more than gain a foothold on the beaches and advance less than a rifle shot inland. At Anzac the failure to regain Baby 700 and to capture Gaba Tepe left the tactical situation highly unsatisfactory, not to say precarious. At the toe of the Peninsula, where landings by the 29th Division on five beaches in the neighbourhood of Cape Helles had been accomplished under circumstances no less dramatic and exceptional, and by fighting not less intense, than at Anzac, the objective laid down by the general staff—namely, the heights of Achi Baba and Kilid Bahr Plateau—had proved as unattainable as that attempted by the northern force. Ten days of incessant fighting in conjunction with the Royal Naval and (after April 27th) the French divisions, which cost in casualties twenty-five per cent of the southern force, with an exceptional proportion of officers, resulted in no more than the capture of the toe of the Peninsula. The line held between "Ravine Spur" and Kereves Dere contained an area some 6,500 yards in depth from Cape Helles and 5,000 yards in width, every part being under shell-fire, and most under rifle-fire, from higher ground, as well as under shell-fire from the Asiatic shore. The effective strength of the defenders was increasing, that of the attackers diminishing through absence

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of reserves.[19] In addition to making frequent counter-attacks —the failure of which again demonstrated the commanding advantage of defence over attack in the absence of over-powering artillery-fire—the Turks were rapidly entrenching, but it was correctly believed by the general staff that the way to Achi Baba was not closed by organised defences.

To avoid the threatened stalemate of trench-warfare—a result which would in the circumstances be only less disastrous than a failure to land—a supreme effort was planned by General Hamilton, to take the form of an advance from Helles. The 42nd Division, garrisoning Egypt, and the 29th Indian Infantry Brigade from the Suez Canal Defences, were to have reinforced the expedition, but only the 125th (Lancashire) Brigade and the Indians were immediately available. These were absorbed into the sadly depleted 29th Division. The New Zealand and 2nd Australian Brigades were brought from Anzac to Helles and associated with the composite naval brigade as a "composite division"—nominally administered by the Headquarters of the Royal Naval Division. For command and administration this improvised formation came under the G.O.C., 29th Division (Major-General A. Hunter-Weston), whose A.D.M.S., though not made a "Deputy-Director," exercised a general control of the whole of the medical arrangements at Helles, including evacuation from the beach, which was now being organised as an advanced base.

Two Anzac brigades sent

The two Anzac brigades were accompanied only by the bearer divisions of their corresponding field ambulances. Most of the tent division personnel and equipment of the Australian units, and the transport of both, were scattered over the Ægean in the "Temporary Hospital Ships." The Royal Naval Division ambulance was without vehicles, but was otherwise complete. The strength of the Australian medical detachment was three officers and ninety-two other ranks; the equipment taken was "only what we could carry—

The medical detachment

[19] The British first reinforcements of 10 per cent did not, as normally, accompany the force, but remained in England.

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stretchers, medical companion, surgical haversack and water-bottles, and our personal equipment." The four regimental officers had the same equipment. Casualties among the regimental bearers had been made good from reinforcements.

The Anzac brigades arrived at Helles on the 6th, and bivouacked in the vicinity of "V" Beach. They found themselves in open meadowland and patches of cultivation sloping gradually upwards towards Krithia village and Achi Baba—a sharp contrast to the ravines, cliffs, and scrub of Anzac. The area was traversed by three creeks or nullahs, whose channels, as at Anzac, afforded approach to the front line. Apart from the nature of the terrain, the medical situation at Helles at this time[20] differed from that at Anzac chiefly in the greater distance of the main evacuating centre—the casualty clearing station near "W" Beach—from the front line. This necessitated a long and difficult hand-carry, sometimes for a distance of three miles, for the most part possible only at night. Three horsed ambulance-waggons had been landed on the 28th, but by order of the G.O.C., 29th Division, their use was confined to evacuation from the casualty clearing station to the beach. Three advanced dressing stations were worked in reliefs by tent subdivisions of the three British field ambulances (87th, 88th, and 89th), whose bearers "cleared" the wounded from the regimental aid-posts ("R.A.P's") and, assisted by returning empty supply-carts, back to the casualty clearing station, near which the resting tent sub-divisions were camped ("unopened").[21] The casualty clearing station was now working, under the Red Cross flag, in eight marquee tents, and was cleared by ambulance waggons to "W" Beach, 400 yards distant. Its function, as at Anzac, was almost purely that of clearance, little treatment being possible beyond first-aid. No cases were held on the Peninsula.

Medical situation at Helles

[20] Medical experiences at Helles were even more varied and considerably more difficult and dangerous than at Anzac. The landings were at five beaches, in daylight: at "Y," "X," and "S" Beaches conditions permitted the establishment on shore of tent sub-divisions and the retention for a time of the lightly wounded. At the terrible "V" and "W" landings the troops could on the first day do no more than gain a precarious foothold on the beach. The wounded were cleared when and as they could be got off. Many of the features described at Anzac, e.g., the use of returning tows and the shortage of stretchers, were reproduced in exaggerated form. The medical casualties were heavier.

[21] That is, had not begun to function as field hospitals.

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No steps had been taken by the D.M.S., M.E.F., to co-ordinate the medical arrangements made by the Anzac Corps, as regards the nature of the detachment sent, with those made by the A.D.M.S., 29th Division. It was indeed only at 4.30 p.m. on the 5th that he was informed of the action to begin on the 6th. The lack of transport and field hospital personnel and equipment with the Anzac brigades "gave rise," as the A.D.M.S., 29th Division, records in his diary, "to enormous difficulties" during the operations. The officer in command of the 2nd Australian Field Ambulance detachment, however, received no instructions or orders from either the "Composite" or the 29th Division. From the British field ambulances he learned the situation of the clearing station and that, in default of returning supply carts, clearance thereto must be by hand-carry.

The fighting

The operations which took place on the 6th, 7th, and 8th gave the 2nd Australian Brigade an opportunity of showing that the Australian citizen soldier could carry through an advance under fire to the extreme limit of soldierly endurance; and to its medical personnel they provided a task which, though not attended by heavy casualties, was as difficult as any faced by the Australian Army Medical Corps in the campaign.

On each day the fighting consisted of frontal advances, made in daylight against an enemy in unlocated positions, and supported by artillery-fire which to a great extent was random and, through shortage of ammunition, inadequate to the point of futility. On the 6th and 7th the Australian brigade was in reserve. The only result of the two days' fighting was an advance of a few hundred yards here and there; except on the French front the enemy positions were not even located. The casualty roll, particularly in the French division, was heavy. The end of yet a third frontal advance, on the morning of the 8th, in which the New Zealand Brigade took part, losing heavily,[22] found the troops everywhere back in their trenches.

[22] The work of the New Zealand Medical Corps is finely recorded in its medical history.

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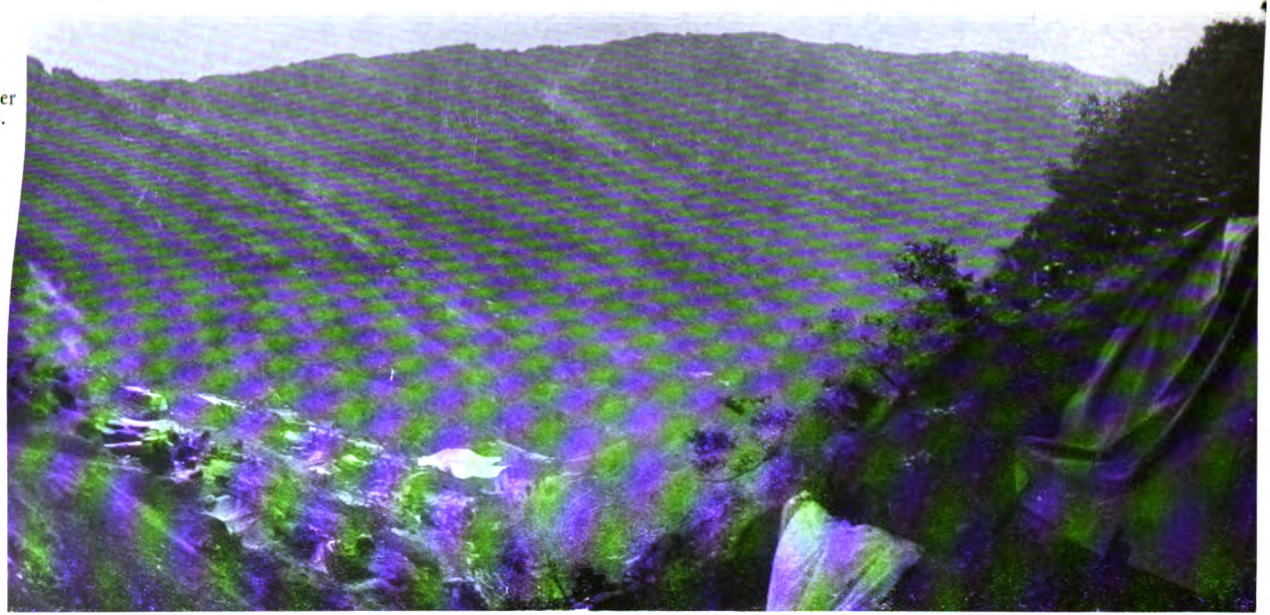

26. POSTS ON THE SIDE OF MONASH VALLEY (THE "SECOND" RIDGE) SEEN FROM RUSSELL'S TOP

The photograph was taken late in the campaign. The streaks down the hillside are spoil from the trenches. In the early days the Turks sometimes reached and sniped from Russell's Top.

Aust. War Memorial Official Photo. No. G1071.

To face p. 152.

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27. A SCENE ON THE BEACH AT CAPE HELLES EARLY IN MAY 1915

The British casualty clearing station can be seen in the background.

Lent by Colonel H. A. Powell, A.A.M.C.
Aust. War Memorial Collection No. C2240.

28. THE 1ST AUSTRALIAN CASUALTY CLEARING STATION, ANZAC BEACH, FOUR WEEKS AFTER THE LANDING

Lent by Colonel W. W. Giblin, A.A.M.C.
Aust. War Memorial Collection No. A1500.

To face p. 153.

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As a desperate eleventh-hour attempt to retrieve the situation, General Hamilton at 4 p.m. gave orders that the whole allied line should fix bayonets and move on "Krithia" at 5.30 p.m. precisely. The French reached their objective—the "Brochet Redoubt," losing heavily. On the greater part of the British line no advance was found possible.

May 8th—2nd Brigade in final attack

The Australian brigade had moved up in the forenoon, and between 3 and 4 o'clock bivouacked some 1,000 yards behind the British front. It had there settled down for the night; the company cooks were preparing tea; the ambulance detachment was bivouacked in a slight hollow a quarter of a mile in the rear. But at 4.55 p.m. the brigadier received the order to move on Krithia, along the flat central ridge or plateau between the Krithia Nullah on the left and the open Achi Baba Nullah on the right. Along it ran a white streak, the Krithia road.

Partly screened at first by trees, the Australian brigade moved up to the British reserve line, and then—first in sections, but afterwards extending into open order—advanced 500 yards under direct rifle fire, machine-gun and shrapnel fire to the front line trench (known thereafter as the "Tommies' Trench"). Thence in broad daylight the 6th and 7th Battalions, closely followed by the 5th and 8th, in open formation attacked the unseen enemy across the exposed meadow, under fire (says the Australian historian) "as heavy as any experienced by Australian troops in the war." After going 500 yards the remnants of the brigade, lying on their bellies in the open, scratched themselves into the ground with entrenching tools and fingers, both flanks "in the air." The affair occupied less than an hour. Over 1,000 casualties—fifty per cent—lay scattered over the whole area of approach and attack, but most thickly near the front. Shortly afterwards, under cover of darkness, the units on each flank moved up into line with scarcely a casualty.[23]

50 per cent. of casualties

The scene of the final Australian advance was approximately 6,000 yards (three and a half miles) from the clearing

[23] The 2nd Australian Brigade, which landed on April 25th 3,885 strong, had received 732 reinforcements before the Krithia action. It returned to Anzac 1,700 strong, having sustained at Anzac and Helles casualties equivalent to 75 per cent of its original strength.

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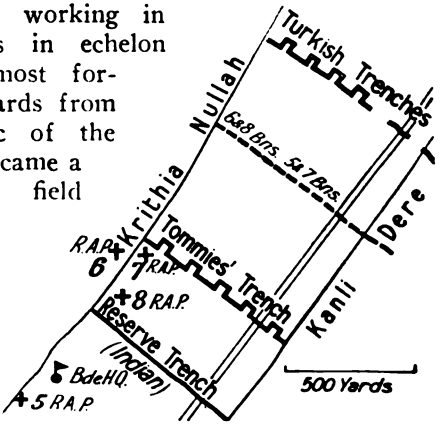
station. On it the Turks concentrated their fire, so that the collecting of wounded was possible only under cover of darkness: "it was unsafe to use a light, and every now and then a storm of machine-gun fire would sweep over the plateau." Movement was dangerous in daylight over the greater part of the approach area. For 1,000 yards behind the front clearance was possible only down the Krithia Nullah. The Krithia road was swept by machine-gun fire night and day.

Clearing the wounded—a 6,000 yards "carry"

Regimental medical officers and bearers—who, in the absence of any warning that the brigade would be engaged, had during the day helped in clearing 29th Division casualties—advanced with their battalions. Almost from the outset squads were carrying back wounded to the field ambulance—the first warning to the latter that the brigade was in action. When the advance was over, the regimental medical officers, working in pairs, formed aid-posts in echelon near the nullah, the most forward being some 300 yards from the line. The bivouac of the ambulance detachment became a "collecting post," the field ambulance bearers at first working forward. Even in the rear area over which the brigade had advanced the wounded were so numerous that they at first monopolised the attention of both regimental and ambulance bearers. From the area of attack the lightly wounded made their own way after dark to the aid-posts or the Tommies' Trench. But the seriously wounded lay out for long before they were reached. Among them were an exceptional number suffering from abdominal injuries, for in the final advance the troops had waded



The regimental bearers

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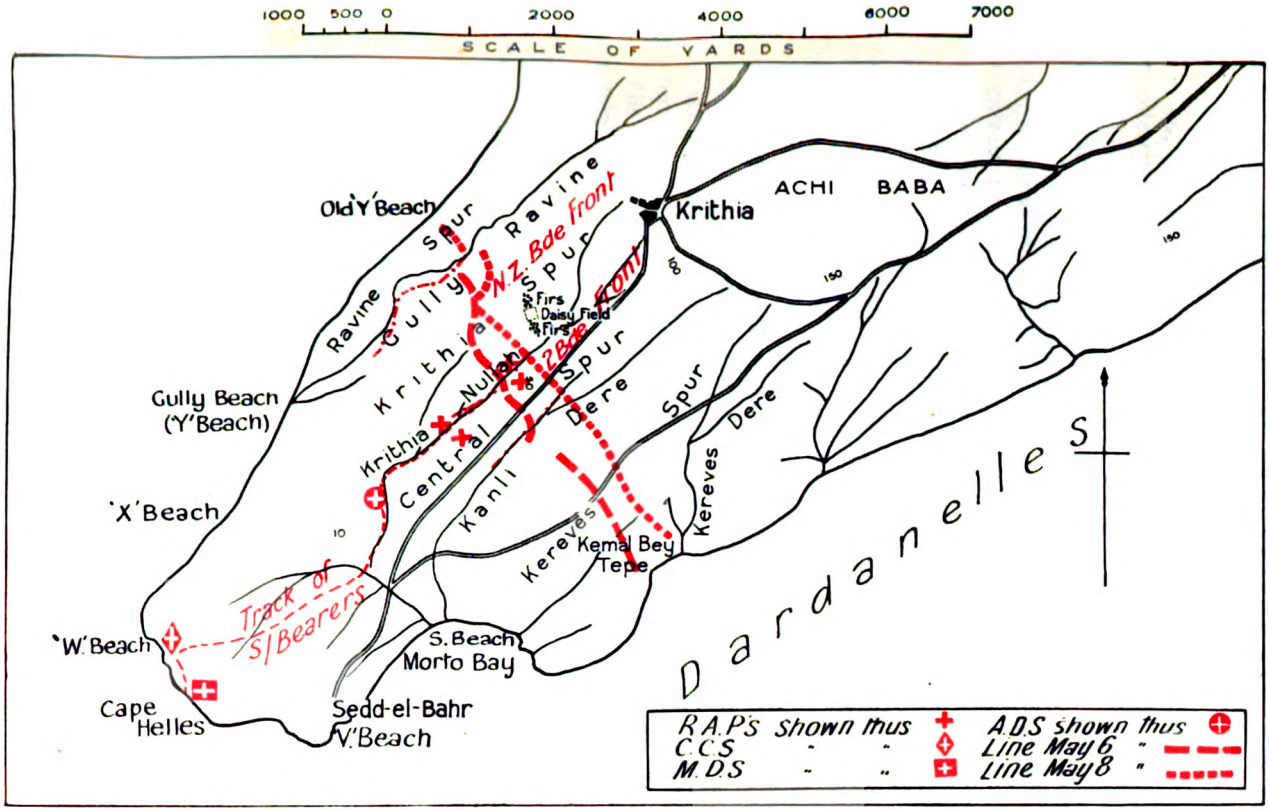

THE CAPE HELLES AREA, SHOWING THE ALLIED LINE ON 6TH AND 8TH MAY, 1915

Map No. 4

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through a veritable stream of bullets waist-high. As night wore on, clearance by ambulance bearers ceased forward of the collecting post, all being required for the long carry to the beach. Aid-posts became congested, and regimental bearers carried the wounded through to the collecting post—"a cruel carry." Towards midnight the brigadier, alarmed at the slow clearance forward, ordered his regimental medical officers to concentrate first on clearing the front area. This was done; casualties were assembled at the regimental aid-posts; the bearers searched the plateau until it was too light to move about;[24] and as day broke the aid-posts were cleared to the ambulance collecting post. Some wounded were not found till the following night: not a few died where they lay, but the great majority were found and brought in. A regimental medical officer records for his bearers "a continuous carrying over rough country with distances up to 3,000 yards, with only two men to a stretcher, for 20 hours." Greatly appreciated help in clearing the right flank was given by bearers of the Royal Naval Division.

The field ambulance detachment was faced with difficulties not less severe than those of the regimental establishments.

The collecting post

Without tent division personnel or equipment for a field hospital, two and a half miles from the clearing station, without transport, with little knowledge of the country, and without warning, the detachment was faced with the maximum of casualties regarded by military authorities as possible to a formation in a deliberate advance. As has been already stated, the ambulance bearers at first worked forward of the collecting post[25] in the area behind the front line. From here, under the direction of two medical officers, they cleared the wounded to the collecting post and also to the regimental aid-posts when these were formed. But as the character of the problem became evident and the little hollow at the collecting post filled up with men, the nature of whose wounds

[24] Search of the battlefield for wounded under Red Cross flag was not a recognised procedure at the Dardanelles at this time, *vide volume II.*

[25] The collecting post was referred to as "advanced dressing station" (or "A.D.S."), a term at this time vaguely used in the A.I.F. without reference to the facilities for treatment. Early on the 9th the regimental medical officers 6th and 7th Battalions moved to a position in Krithia Nullah a little forward of "Tommies' Trench," of the 8th to a position on the right flank. *See Sk. p. 154.*

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made early evacuation a matter of life or death, stretcher cases as well as walking wounded began to be cleared back to the Beach. The bearer squads made for the nearest road "in the hope that they might strike transport. Some few were lucky, others carried their cases right to the C.C.S. at the Beach—between three and four hours at the shortest for the double journey. Many of the squads went astray in the darkness, as the route was almost unknown."

The Ambulance bearers

At the collecting post the medical officers and batmen did what they could for the wounded during the cold wet night, without blankets or other equipment. "We were able to give them all something hot during the night, our batmen acting as cooks and dispensers of hot drinks. This was, I am afraid, the only comfort we could give." When dawn broke, between 200 and 300 serious cases lay about in the hollow, dressings had run out, stretchers were very scanty.[26] The officer in command saw that the situation was beyond the scope of his detachment. At 6 a.m. on the 9th he informed the A.D.M.S., Composite Division, of his plight, but that officer could give only cold comfort. Transport was not available—"they should have brought their own." The 29th Division bearers had "been worked to a standstill." "All my officers and men are absolutely done" (says the officer commanding 87th Field Ambulance in his diary). "We have been going night and day for practically the last 15 days under fire with little or no rest." Ambulance waggons were still held to the Beach, and though a British field ambulance came to the rescue of the collecting post, and the Royal Naval Division bearers had already helped to clear the right flank, it was not till the night of the 9th, and only by tremendous toil, that the post was cleared. During the next day only about thirty men had to be evacuated; these were cleared by ambulance waggons, which by noon were permitted along the Krithia road within three-quarters of a mile of the post. The advancing of the line had, indeed, considerably eased the medical situation.

Help from British Ambulance bearers

[26] As at Anzac on the 25th, and for precisely the same reason, namely, lack of reserves and retention in the "Black Ships," return or replacement of those stretchers on which wounded lay was refused by the casualty clearing station.

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The trials of the wounded were far from being over when they reached the clearing station. Though its overworked staff showed every kindness, its resources were quite overtaxed by the unexpected rush of Australian wounded, and the adjacent British tent divisions were opened up by the A.D.M.S., 29th Division, to take the overflow. Owing to the inadequacy of shipboard accommodation, clearance to the roadstead was also seriously held up. At 12.15 p.m. on the 9th the D.M.S., M.E.F., ordered that all lightly wounded should be retained ashore, and, at 7.15 p.m., that all evacuation should cease, cases to be held in field ambulances. "But these," in the words of the A.D.M.S., 29th Division, "were already congested, cases were pouring in, the situation was critical."

Casualties were still sent off, but not a few remained during the night in the small craft, held up between the congested hospitals on shore and the crowded ships in the roadstead. The movement of these casualties along the lines of communication will be followed later. It was more than five days before the majority of the seriously wounded received effective attention. The death rate was very heavy. For defects in the collecting of the wounded from this gallant but very terrible little "affair" the medical service received some criticism. It is obvious, however, that a casualty rate of fifty per cent was, under the circumstances, dealt with by the medical detachment in a manner which calls for commendation rather than censure. Australian medical casualties were few; one officer and one other rank were killed, and one officer and five other ranks wounded.[27] Regimental stretcher-bearers lost more heavily.

Congestion at Helles roadstead

On the 12th the brigade was relieved, and on the 16th returned to Anzac. Here in the meantime things had been quiet. Casualties (sick and wounded) averaged only 135 per day, and with these

Anzac— May 5–12th

[27] The deaths included, however, a man whom medical science could ill spare. The R.M.O. 5th Battalion, Captain G. C. M. Mathison, a graduate of Melbourne University, whose research work had given promise of an international reputation, was wounded in the head by a rifle bullet outside his aid-post and died on the 18th.

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the 1st and 3rd Field Ambulances on the right and 4th Australian and Royal Naval on the left easily coped. The garrison (reduced to little over 10,000 rifles) was content to consolidate the position; the enemy was fully occupied at Helles. Meanwhile the services of maintenance were developed. The engineers made piers and roads and dug wells. The supply service had established dépôt units on the Beach, and, like the medical, telescoped or eliminated its land-transport system, while it endeavoured to adapt its organisation to amphibious conditions. The medical service had settled down, and clearance was becoming systematic. Equipment had been landed; in the absence of No. 4 Advanced Dépôt (detained in the transports), the 1st Australian Clearing Station was acting as supply dépôt. The Royal Naval Field Ambulance carried on with the clearing station on the Beach till May 12th, when it was replaced by the 4th Australian. For administration, Lieutenant-Colonel G. St. C. Thom, R.A.M.C., was on May 6th appointed "Embarkation Medical Officer" to "supervise the transport of sick and wounded to the boats and thence to Black Ships or Hospital Ships," replacing Colonel Manders, who, during four days, acted as "D.D.M.S." The clearing station remained attached to corps, though still administered by the A.D.M.S., 1st Australian Division.

Death of General Bridges

Among the many deaths that at this time, in spite of sandbagged traverses, were taken in toll by snipers of the traffic in Monash Valley, two are now part of Australian history and Australian tradition. It was difficult to induce General Bridges to exercise the discretion of movement which in this, the "Valley of Death," even the most courageous permitted himself; and on May 15th, near the 1st Battalion aid-post, a sniper's bullet severed his profunda femoris artery and femoral vein. Though first-aid was prompt, he died on May 18th in the hospital ship *Gascon*. When dying, his final instruction to Colonel Howse was that his regret should be conveyed to the Minister for Defence that his despatch concerning the Landing was not complete and—he was too tired now.

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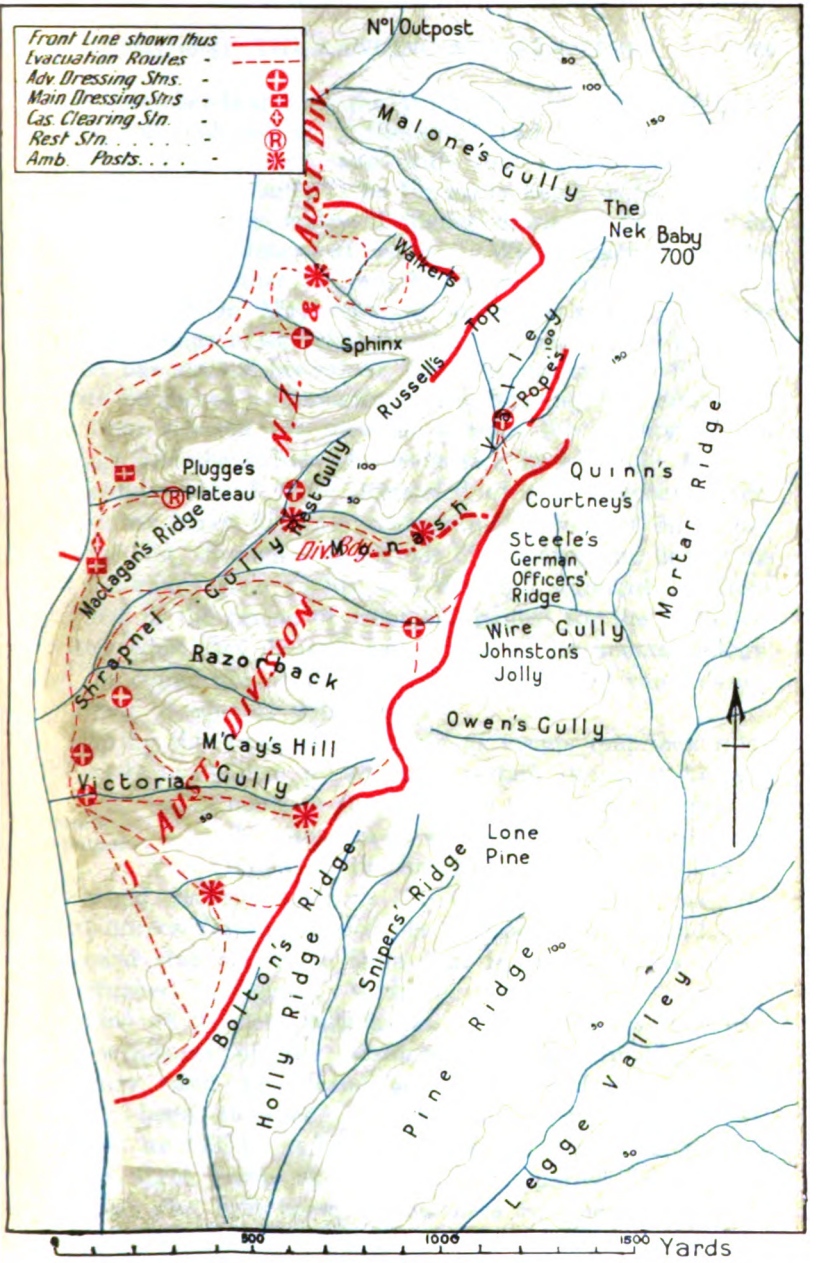
Map No. 5



ANZAC AT THE MIDDLE OF MAY 1915, SHOWING MEDICAL POSITIONS AND ROUTES OF EVACUATION FROM THE FRONT LINE TO THE BEACH

Height contours, 10 metres.

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A stretcher-bearer of the 3rd Field Ambulance, of quiet disposition, enlisted as "Simpson," had obtained a small donkey, and with this animal (known as "Duffy") he for many hours daily traversed the valley, bringing down in this way an extraordinary number of cases. When warned of the extreme danger that he ran, he would always reply "My troubles!". On May 19th, at the same spot as General Bridges, Simpson was shot through the heart. No cross of bronze has marked his valour, but in the memory of his brief service he gained a monument more enduring.[28] "Simpson" has been selected for mention because the quality of his courage and the nature of the service in which he lost his life are typical of those demanded of the stretcher-bearer, who must carry his case undeviatingly, without haste but without rest, through long periods of exacting and dangerous toil. Conduct such as his, and the high standard set from the first in the rescue of wounded, gained for the stretcher-bearers what they desired—not a halo of sentimental eulogy, but the confidence of the men who fought and comradeship on terms of equality with them.

Death of "Simpson"

During this time, in the chain of events that inexorably followed the failure to advance, certain decisions brought home to the A.I.F. in very poignant fashion the situation in which they now found themselves. In the first place, on May 5th General Birdwood recommended to the G.O.C., M.E.F., that the 7,000 horses (averaging 250 per transport) which had been on board ship off Anzac from four to twelve weeks should be returned to Egypt. With the rest went the transport divisions of the field ambulances. But worse was to come. The weakness of the position made a strong garrison necessary, and the second and third reinforcements had already been absorbed. To provide a garrison General Bridges, as G.O.C., A.I.F., consented to the temporary use of the light horse as infantry. Supported by General Maxwell, the light horse commanders fortunately prevailed

Results of failure

[28] "Simpson"—Private J. S. Kirkpatrick—and his donkey have become (it may be noted for non-Australian readers) among the best known personalities of Australian war history.

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in procuring that, though separated from their beloved horses, the three light horse brigades should go to Anzac as distinct formations, not as mere reinforcements to infantry units. On May 12th the 1st Light Horse Brigade replaced the 3rd Royal Marine Brigade in Monash Valley; the 2nd and 3rd arrived a week later. The 1st, 2nd, and 3rd Light Horse Field Ambulances, well trained and full of characteristic light horse spirit, found themselves very unhappily situated. Anzac did not want them. With roads and system now established, the bearers already landed could easily deal with the casualties; field hospitals had been cut out. Problems of water and supply made it necessary to exclude all but essential units. The 2nd and 3rd managed to get ashore, but found little to do. The 1st was detained on the lines of communication.

May 19th—Turks attack

On May 19th the Turkish command made their counter-attack at Anzac. At daylight along the whole front 40,000 Turks, advancing with the utmost bravery, were met by a fire so intense that, almost without reaching the line, some 10,000 were killed or wounded, with only 350 casualties among the defending troops. Five days later, on the initiative of the enemy, there took place an "armistice for the burial of the dead," in which the A.A.M.C. bore a responsible part and amicably swapped experiences and cigarettes with the "enemy."

With the armistice for the burial of the dead ends, appropriately enough, the first phase (from the medical point of view) of this extraordinary military adventure. The prodigious slaughter of the strenuous three weeks left both sides licking their wounds in the comparative security of deepening trenches. Leaving for the time the medical service on shore to face new and even more difficult problems now looming, it is necessary to follow, on the lines of communication at sea, the fortunes and fate of the casualties, slight and severe, whose collection in the field and transfer from the Beach to the boats have been narrated.

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CHAPTER IX

THE LANDING: LINES OF COMMUNICATION

In the distribution of casualties to the hospital ship and selected transports, and in their accommodation and treatment on board the latter, serious miscarriage of medical arrangements occurred. In the Anzac roadstead this was partly inevitable, being due to the failure to obtain an effective foothold, but in no small degree also to failure on the part of both navy and army to ensure that orders were clearly known, and to the absence of sufficient small craft. Aboard the transports it was due to the tardy appreciation on the part of the M.E.F. general staff, before the operations, of the full involvements of the medical problems, and the consequent imperfect preparation of ships and provision of personnel; and to lack of administrative control during their course. This latter, in turn, was brought about by neglect to appoint a medical officer to the Army Corps Staff and to the isolation of the administrative staff of G.H.Q. during three vital days. The result brought serious discredit to all concerned, although the avoidable loss of life to the troops was, almost certainly, much less than was generally imagined. The question whether, in the circumstances, provision for the sea transport of wounded should have occupied a more prominent place in the military plan is one of some military importance, but discussion of it is outside the scope proper to a medical history.

* * *

The disposal of wounded after leaving the beaches, and their evacuation on the lines of communication to the medical bases of the expedition, were responsibilities shared in somewhat confused fashion between navy and army. It is here that the exceptional nature of these amphibious operations and the imperfect provision for naval and military co-operation on the medical side became most evident. As in the preparations, medical problems were relegated—whether rightly or wrongly must be adjudged by those who make wars and desire victories—to a very subsidiary position, and the wounded suffered greatly in consequence.

At Anzac, during the four days of the landing operations, medical-staff control of evacuation beyond the division was

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on the army side wholly in abeyance. The position of the two divisional assistant-directors of medical services was nebulous. While some responsibility was imposed,[1] the orders sent to them by the D.M.S., M.E.F., had been deliberately confined to divisional arrangements, and it was evidently not intended that either of the two should exercise authority extending over the lines of communication. The resignation by the A.D.M.S., N.Z. & A. Division, of the position of D.D.M.S., A. & N.Z. Army Corps, having been accepted, he was relieved but not replaced, and, the D.D.M.S. and A.D.M.S. for the Lines of Communication[2] being left idle at Alexandria, on the military side it devolved solely on the D.A. & Q.M.G. of the corps to control, in conjunction with the navy and under the direction of army headquarters, the disposal and distribution of the casualties whose movement has been followed as far as the beaches.

Responsibility falls on D.A. & Q.M.G. of Corps

The A.D.M.S., 1st Australian Division, had been informed that the Anzac Corps would be "absolutely cut off" and "working on their own." Not only was this the case, but during this vital period, while 6,000 wounded at Helles and Anzac had passed through the army zone to the lines of communication under circumstances which urgently called for vigilant and well-informed medical administration, not the medical department only but the heads of both the quartermaster-general's and adjutant-general's branches of the army were marooned in the troopship *Arcadian* without means of communication with the shore or transports. The services of maintenance consequently stood or fell by the arrangements already made, and these, so far as the medical was concerned, had been left in a condition which made serious trouble inevitable. It was not until the 28th that the M.E.F. administrative staff resumed its suspended functions, evacuation having in the meantime been "carried out in accordance with the scheme" by a member of the general staff on board H.M.S. *Queen Elizabeth*.

Isolation of D.M.S., M.E.F.

[1] For example, the staffing of the selected transports.

[2] Colonel J. Maher and Lieut.-Colonel G. St. C. Thom respectively.

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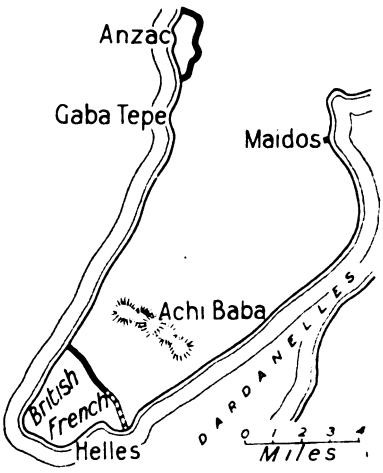

The D.A. & Q.M.G., A. & N.Z. Army Corps,[3] landed on the 25th but retained a local headquarters in H.M.S. *Queen*, the flagship of the rear-admiral directing the naval operations at Anzac. On the naval side the "S.M.O." of H.M.S. *London*[4] was made Senior Naval Medical Officer and placed in medical control of arrangements, his responsibility covering the movement of wounded from Beach to ships, where military line-of-communication responsibility began. During the Landing this indefatigable officer shouldered much of the burden evaded by the army.

Naval direction by S.M.O.

Executive responsibility for evacuation from pier to ship's deck was exclusively naval.[5] The medical tow which, with a capacity for "36 cot cases," was the sole means of transportation officially provided for the wounded on this stage of their journey to the base, was not used solely for medical purposes; but it was only when so employed that it flew a Red Cross flag (and this was invariably respected). Though the craft employed were not specially prepared, they were adequate for the number specified, and were accompanied by sick-berth ratings. Of the ships specially designed for receiving the wounded, the hospital ship *Gascon* arrived at 7 a.m. on the 25th and anchored some mile or two off the "North Beach," where, conspicuous in white and green paint and with the red cross, and at night brilliantly lighted, she was the natural objective for tows with wounded, and was

In anchorage—hospital ship *Gascon* and transports

[3] Brigadier-General R. A. Carruthers. He was responsible on the military side for dealing with all matters of supply and transport for Anzac. *See Appendices 1 and 2.*

[4] Fleet Surgeon C. C. Macmillan.

[5] In relation to the normal army scheme of evacuation, this stage may be held to correspond in respect of movement and administration to that between the field ambulance or casualty station and ambulance train. The question of responsibility from beach to pier was not at this time clearly defined. *cf. Chapter XII.*

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not—at this or any other time—interfered with by the enemy. The troopships, including the selected temporary hospital ships, at first anchored some two miles from the shore in known positions. At 10 a.m., however, being shelled, they moved three or four miles out, and became scattered. The selected vessels had no mark to indicate their medical purpose, and at night all lights were darkened. The medical tow had been provided by the navy to meet the needs of the seriously wounded on the first day, no provision being made for any considerable clearance of light cases: but apparently no formal instructions had been issued to all concerned that they were not to use returning small craft for the carriage of wounded.

Transfer to ships disorganised

The naval beach party did not arrive on the Beach till 11 a.m.; partly through its absence, events had from the very beginning taken the bit in their teeth and played havoc with the medical arrangements. From 5.30 a.m., while the disembarkation of the 1st Australian Division was proceeding, wounded men, serious as well as slight cases, arrived in returning tows and pinnaces alongside the battleships and also alongside the troopships, whether they were those specified to receive wounded or not. In this way, and later by the medical tow, some 300 to 400 cases, chiefly slight, were distributed in the forenoon and early afternoon. The hospital ship received from 9 a.m.—chiefly cases of the lightly wounded. Some interchange of these with the transport *Clan Macgillivray* was carried out, but the steps taken to restrict the use of the "pukka" hospital ship to seriously wounded—the central principle of the medical plan—were entirely inadequate. In any case the situation could not have been met by the one hospital ship with her limited capacity.[6] The *Clan Macgillivray* systematically received wounded from 11 a.m. The transport *Seang Choon* did not arrive till the late afternoon, and the unprepared *Lützow* was used instead. The transport *Hindoo*, with staff and equipment for the temporary hospital ships, did not arrive, and in the *Lützow* a veterinary officer, helped by an orderly and a few combatants, did what he could with little equipment but sufficient morphia.

[6] Had two or three been lying off the Beach, the medical record of the Landing would have been very different.

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29. "SIMPSON" AND HIS DONKEY

Lent by Major W. R. C. Beeston, A.A.M.C.
Aust. War Memorial Collection No. H13959.

30. THE TURKISH ENVOY BEING LED PAST THE 1ST AUSTRALIAN CASUALTY CLEARING STATION ON MAY 22ND AFTER ARRANGING FOR AN ARMISTICE TO BURY THE DEAD

Lent by Colonel W. W. Giblin, A.A.M.C.
Aust. War Memorial Collection No. A1506.

To face p. 164.

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31. ANZAC BEACH, 3RD MAY, 1915

The hospital pier is in the foreground. Wounded are being carried to the boat.

Aust. War Memorial Official Photo. No. G930.

32. A TOW WITH WOUNDED PASSING ONE OF THE TRAWLERS IN ANZAC COVE, 26TH APRIL, 1915

Lent by Lieut.-Colonel H. R. G. Poate, A.A.M.C.
Aust. War Memorial Collection No. A1797.

To face p. 165.

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After the first irregular rush in returning tows, considerable numbers—still chiefly of slightly wounded—reached the *Gascon, Clan Macgillivray,* and *Lützow* by medical tow as well as by shipments made in defiance of the general order.[7] With the relaxing of restriction on the use of tows when disembarkation of the 1st Australian Division was completed, a steady flow began. Up till this time, except for shelling and for the fact that arrangement for boarding the vessels had to be improvised, the conditions of transportation were not unsatisfactory. The distribution of wounded in the roadstead and their disposal, so far as it could be compelled, was directed by the naval "S.M.O." At the same time the A.D.M.S., N.Z. & A. Division, though he took no active steps, appears to have kept himself in some measure informed of the course of events, and from time to time sent unavailing messages to the D.M.S., M.E.F.

Large numbers embark irregularly

But as regards reception in the temporary hospital ships, preparations were gravely inadequate and conditions deplorable. The *Lützow,* with 130 horses on board, and declared by the Australian surgeon acting as consultant[8] to be "the dirtiest, nastiest boat I have been on," remained throughout the day with no better facilities than those in the unselected vessels.[9] Except for the presence of a small staff and equipment, the conditions in the *Clan Macgillivray* were not much better. When at 5 p.m. unrestricted clearance began by all types of small craft, other troopships were used. The *Seang Choon,* which was now available, though in the absence of special instructions her troops—the 14th Battalion—were not disembarking, had a medical staff and equipment on board, but "should have had a thorough overhaul even for the accommodation of lightly wounded." By 7 or 8 p.m. there became manifest the inadequacy of the provision for the accommodation and treatment—as had been that for transportation—of all the wounded arriving in the roadstead. From this time onwards there recommenced a promiscuous

Transports unfit for reception

[7] Of such a kind was the evacuation from North Beach by boats, which had lain there abandoned since the costly landing on that flank (*see p. 137*).

[8] Colonel C. S. Ryan.

[9] *See p. 170-1.*

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distribution of wounded to any troopships that would take them. Many of these, indeed, were far more fitted in personnel, stores, and conditions than the temporary hospital ships. About 9 p.m. the hospital ship *Gascon* left for Lemnos with 548 cases, a large proportion very slight ones. By dusk the *Clan Macgillivray* was "full," and the *Seang Choon* (still with her troops on board), having taken 500 of all grades of severity, refused more. Thereafter the tows experienced the utmost difficulty in disposing of their loads. Ships widely scattered would be visited one after another, but, being without instructions or warning and often without medical personnel, they would either take no wounded or only a few. No special provision had been made, even in selected vessels, for hoisting the wounded aboard.[10] Transfer from the boats was thus at best a slow business. Tows were left alongside while the steam pinnace or "tug" returned to the battleship. It was partly in this way that arose the hold-up from the pier after 10 p.m. The hardships suffered by the severely wounded were great. The night was dark, wet, and cold, and the sea choppy. There were no blankets on shore, and, though most wounded got hot drinks, cigarettes, and food at the clearing station, they had perforce been sent off cold and with little covering. Not a few died in the boats, two of which were swamped. Sea-sickness added to the misery of many.[11] But before morning all casualties from the shore had been bestowed, and were at least in safety.

Nightfall—distribution becomes promiscuous

Causes of hold-up on Beach

The cause of the breakdown in the arrangements for the transfer of casualties from shore to ship was, insofar as avoidable, partly that the orders were not generally known—even by the naval beach-party when it arrived at 11 a.m.; partly that

The causes of confusion

[10] The best means found for embarking seriously wounded from boats was by a simple oblong box (*see plate at p. 172*), the essential points of which were that it must be longer than the stretcher and well-balanced. Two sitting cases could thus be handled. Larger ones were also used, holding two stretchers. Not all the selected transports had been equipped with these or with any special arrangements for receiving wounded from boats.

[11] One tow, for example, at 10 p.m. visited six ships before being accepted at the *Seang Choon*, and even then it tossed alongside for two hours. The last tow, consisting of large lighters (half the cases "serious"), after making a terrible trip round the fleet and trying seven ships, was ultimately found at 3 a.m. by the naval medical officer alongside the troopship *Itonus*, which had refused to take

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the selected transports were forced to move from their pre-arranged berths and that when they had moved they were marked by no sign visible at night. But the main cause was candidly acknowledged by the navy (whose ingenuousness is refreshing)—that the provision of small craft for evacuation and other arrangements for this stage were "totally inadequate," the essential cause being the lack of a sufficient number of small craft.[12]

The Navy's work

In judging this important stage of evacuation from the point of view of the navy, the circumstances must be held in mind. During the first twenty-four hours, in which (to quote again the naval beach-master), "the operation plan did not provide for more than a very limited number of wounded being evacuated from the Beach" the total Australian and New Zealand wounded (almost 1,800) were transferred by the navy from the shore to ships in the roadstead. During this time, while taking part in the engagement also, it had disembarked under heavy fire on a shallow beach 18,000 troops and 300 mules, besides a prodigious quantity of munitions and stores.

Whatever may have been the defects in the arrangements and orders, no flaw could be found in their execution. Casualties among boats and men were heavy. "The Naval beach section, which had to deal with the embarkation of the wounded, had by far the most trying and hardest work of all the (naval) sections." There is ample evidence that in the work of the naval officers, midshipmen ("the joy and admiration of all"), and ratings who co-operated with the army on the Beach and manned the boats, Australian soldiers saw the highest traditions of the British Navy admirably sustained.

Once on board the transports, casualties received such attention as was possible in the face of almost total unpreparedness. They were distributed by the ship's crew and

the cases. On a peremptory order they were taken, transfer not being completed till 5 a.m. Two fleet surgeons were placed in charge, but without orderlies, and these could do little more than deal with the worst cases.

[12] The Mediterranean had been ransacked for these. The casualties in steam pinnaces were heavy. Herein lay, it would appear, the most formidable naval difficulty of the undertaking.

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Reception on board transports

medical personnel (if any) and by hold-parties, or by troops awaiting disembarkment, which, together with that of stores, often proceeded *pari passu* with the arrival and disposal of wounded. These hired vessels, being fitted out for troops only, were quite unprepared for such large numbers, and the services of the ships' crews in this connection were purely voluntary. Serious and slight cases were perforce stowed promiscuously. Mattresses or straw palliasses were found by the ships, and the blankets left by the troops were available. The unskilled helpers, and even medical orderlies, refused, not unnaturally, to remove from the stretchers badly mutilated or dying men. Hence arose the serious shortage on shore. Even in hospital ships or selected transports there were neither reserves of stretchers nor instructions for their return, and the field ambulances, expecting every moment to land, refused to dismantle their waggons without authority.

For the lightly and less severely wounded ("walkers" and "sitters") conditions in most transports were favourable —more so than would often be the case on land. All had their wounds protected by first field dressing, and within a few hours were in safety and (as is recorded of the *Seang Choon*) "warm and quite comfortable under the circumstances." For the severely wounded, however, the conditions left much to be desired, and for those dangerously wounded, who urgently needed surgical attention and skilled ministration—"abdominals," cases of injuries to blood-vessels, extensive lacerated wounds, femurs, and so forth—the outlook was in the absence of hospital ships very serious. Sometimes lacking even the essentials of nursing, such as bed-pans, their plight, when the effects of morphia had worn off, was unhappy indeed.

April 26—The Navy steps in

By the morning of the 26th the implications of the situation were becoming evident; urgent messages were reaching the flagship from masters of troop-ships. The D.A. & Q.M.G., being fully occupied on shore, does not appear to have taken special action; the assistant-directors of medical services remained on shore. Colonel Manders, the senior, though

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at 6.45 a.m. he endeavoured, again without avail, to communicate with the D.M.S., M.E.F., took no special steps to intervene. The navy came to the rescue. Through the Senior Naval Medical Officer (Fleet Surgeon C. C. Macmillan) a large number of naval surgeons from the battleships were sent to the troopships most in need, and during this and the following day these officers, assisted in many cases by a civilian ship's doctor, worked continuously, though their efforts and those of small parties in the selected troopships were almost paralysed by the lack or insufficiency of medical orderlies and equipment.

Casualties continued to pour in, 800 being received during the day, and a "special tow of boats" from H.M.S. *London* distributed to the selected troopships those which had been taken to the battleships and to other transports. The *Ionian* (for example), one of the additional "selected transports" —though neither the master nor the senior medical officer on board had been warned, and though till 6.30 a.m., when the barges came alongside both were unaware that she was to take wounded, and had "not a thing prepared"—took 400 cases during the morning.[13]

During the day the G.O.C., A. & N.Z. Army Corps, was notified by G.H.Q., M.E.F., that the transport *Hindoo* with medical equipment was being ordered up, and that "two more vessels" had been "authorised as Temporary Hospital Ships." Both of these were crowded already, and the *Hindoo* did not put in an appearance, nor could her whereabouts be ascertained by the rear-admiral. On the 27th, troops and stores having been landed, the rear-admiral himself decided to take action for the better disposal of the wounded. It was evident that a breakdown had occurred in medical administration, and, the grave condition of affairs having been brought to the notice of General Birdwood, Brigadier-General Carruthers turned his attention seriously to the medical side of his manifold responsibilities. Together with the Senior Naval Medical Officer, he inspected all the transports. Drastic

April 27— drastic action taken locally

[13] The effect of the absence of medical control on the military side is illustrated by the transfer to the *Lützow* (which had then only two naval surgeons and no orderlies) of 50 cases from the transport *Nizam*, which had a full field ambulance on board.

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action was evidently called for at once. During the day wounded were concentrated in the four selected troopships and the transport *Itonus:* the *Galeka* and *Derfflinger* were detailed for further wounded, and ambulance personnel replaced or reinforced the naval surgeons. The general distribution of cases and personnel is shown elsewhere.

The conditions in the transport *Itonus* may be taken as typical. At noon on the 27th the officer commanding the 1st Field Ambulance, with two officers and twenty-seven other ranks, received orders to transfer to this vessel; the remainder of the tent division was distributed to other transports that carried wounded.

> We transhipped our wounded to the *Itonus*, with 450 on board. A couple of fleet surgeons had worked continuously since Sunday, but they had no orderlies and little equipment, wounded being packed in and huddled together wherever they could put them, irrespective of the character of their wounds. . . . There were mules on the foredeck, the ship had been left dirty, the latrines were choked, the food bad, ventilation very imperfect; actual hospital accommodation was unprovided. We arrived at 4.45 and sailed at 5 p.m.[14]

April 28—Five ships sent off—more taken up

In view of the conditions in all the transports it was decided by the rear-admiral and D.A. & Q.M.G. that the five vessels first detailed should be sent off at once. The following report of his action was given by the latter to corps headquarters:

> April 28th. I yesterday organised the hospital transports; put medical officers and equipment on board, and despatched them to Alexandria. The following vessels, carrying about 2,500 wounded, have left—*Lützow, Itonus, Ionian, Clan Macgillivray, Seang Choon.* I have had to disorganise the field ambulance somewhat to get the medical officers and equipment, and the wounded are very uncomfortably housed; and the attendance is insufficient and the drugs scanty, but no more was possible. The *Hindoo* with stationary hospital and equipment has never come at all. I have given all the transports orders to return as soon as possible, and have told the medical officers to select and bring back any slightly wounded who are fit to rejoin the ranks. Hold parties and military transport staff have in most cases stayed on board; as the doctors had no medical attendants, the hold parties were doing the work.

G.H.Q. in Egypt was notified, but no communication could be made with the D.M.S., M.E.F.

The troopship *Derfflinger* received cases during the 27th. She filled rapidly and, with two Australian medical officers and ten other ranks, left for Egypt with 566 wounded at 6 a.m. on the 29th. In the meantime the *Galeka* had been taken

[14] From diary of Major A. J. Aspinall, A.A.M.C.

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over by the 3rd Field Ambulance. The medical officer in charge records the circumstances—

April 28th, 11.30 a.m., received verbal orders from naval officer to transfer 2 officers and 10 other ranks to *Galeka*. Found chaos, 200 wounded all varieties on board; ship's doctor and a naval medical officer with 2 orderlies trying to cope with cases; wounded lying all over the decks. No arrangements for feeding or bedding. Many of the cases had been hit on the 25th, the hold party left by the infantry doing their best. . . . Working at dressing, ligaturing, and amputating until 6.30 next morning, wounded arriving all the time.

April 29th. Purser reported no food supplies, as vessel had been held up so long in Mudros: sent to *Suffolk* and drew supplies of flour and tea, cocoa, meat extract. By 10 a.m. there were 400 casualties on board, abdominal cases, G.S.W. head . . . two naval surgeons came over, put in a few hours hard work. (By evening) 19 of wounded had died, chiefly head and abdominal wounds, for whom we could do nothing; but thank the Lord we had morphia in any quantity. After shipping another 150, mostly slight, we sailed at midnight for Alexandria.

By the 29th it had become obvious that the tent divisions would not be landed, and the experience in the next vessel used is in pleasing contrast to that on the previous one, for here a complete tent division was given time to organise and prepare. At 11.30 a.m. on the 29th the transport *Mashobra*, with tent division of 2nd Field Ambulance on board, was ordered to "Anzac" for wounded, who began to arrive four hours later. The vessel was clean and well found, the horses on board were no serious inconvenience, the master and ship's company were particularly helpful. Some 400 cases were received and dealt with to the satisfaction of the critical officer who commanded the unit.

By the evening of the 29th eight transports had been filled and six of these despatched from Anzac. The distribution of wounded, medical personnel, and equipment in these vessels suffered, it is clear, from haste and lack of system. The wounded were distributed promiscuously, and the medical units were most unevenly broken up into "details," with great detriment to efficiency.[15] But at least the wounded were got away with reasonable celerity.

Eight transports

The despatch of the *Mashobra* took place at the same time as the completion of the Landing operations. On the 28th

[15] Thus the *Derfflinger* with 566 cases had two medical officers and ten other ranks, while the *Mashobra*, with 405, had a tent division.

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control of the evacuation of wounded was taken over by the administrative staff of the M.E.F.—D.A.G., D.Q.M.G., and D.M.S.—stationed in the *Arcadian*, which lay off Helles. Surgeon-General Birrell found it necessary at once to make new plans, since it was found impossible to treat cases on shore, as had been intended. On the 28th he instituted a system of "Dépôt Ships" for lightly wounded who could be returned to duty. These ships were to lie off the beach at Helles, and work in conjunction with a "ferry service" of hospital ships and "temporary hospital ships," which would remain off the beaches till "full" and then proceed to the base in Egypt. The personnel of the scattered stationary hospitals was to be re-collected, and units re-formed: "the Australian wounded to come down here (*i.e.*, to Helles) by any available ship, so as to fall in with this scheme." The D.D.M.S. and A.D.M.S., Lines of Communication, were cabled for from Alexandria, Colonel Manders being instructed by G.H.Q., M.E.F., to "act as D.D.M.S." for Anzac in the meantime.

D.M.S. resumes control and initiates new arrangements

No steps were taken to use Lemnos as a medical base. No. 1 Australian Stationary Hospital—with its fine staff idle, its wards, capable of accommodating at least 400, its operating room, and its X-ray plant dismantled—awaited at Mudros the move to the Peninsula, a Will o' the Wisp which delayed for four weeks the establishment of line-of-communication units on land.

No wounded had left Helles roadstead when the D.M.S., M.E.F., resumed control. In their actual landing the troops at the southern end of the Peninsula had suffered proportionately heavier loss than those at Anzac, but their loss was considerably less during the following week. Thus the total casualties up to and including May 2nd were 5,100 at Helles (3,825 wounded) or 9,000 including French, as against 8,364 (6,120 wounded) at Anzac. As compared with the northern landing, the difficulty of evacuation by sea was greatly modified by the fact that, with a considerably smaller number of wounded, there were available on the 26th four hospital ships, the *Sicilia, Delta, Guildford Castle,* and *Soudan*

The 29th Division at Helles

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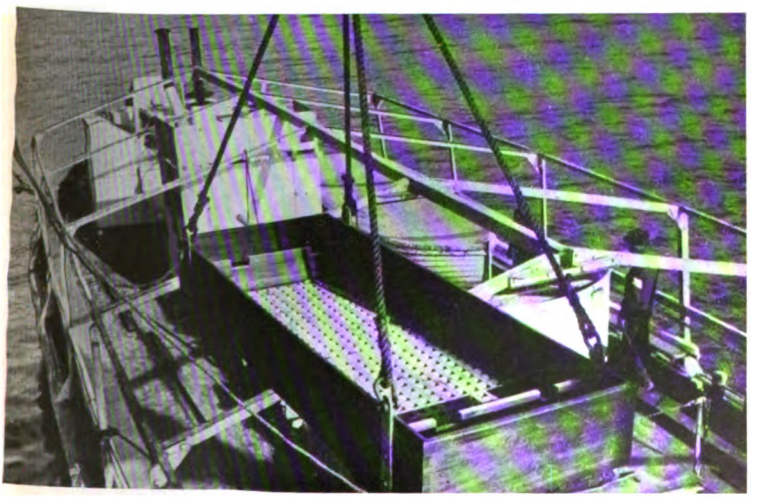
33. A FLAT-BOTTOMED BARGE LADEN WITH WOUNDED LYING BESIDE A HOSPITAL SHIP OFF ANZAC

Lent by Sister A. J. Twynan, A.A.N.S.
Aust. War Memorial Collection No. A2740.

34. CUTTERS CONTAINING WOUNDED COMING ALONGSIDE A TROOPSHIP AT ANZAC ON 26TH APRIL, 1915

Lent by Lieut.-Colonel H. R. G. Poate, A.A.M.C.
Aust. War Memorial Collection No. A1798.



35. A CRADLE FOR REMOVING WOUNDED FROM BARGES TO HOSPITAL SHIP OR TRANSPORT

Lent by Lieut.-Colonel B. Quick, A.A.M.C.
Aust. War Memorial Collection No. C1672.

To face p. 172.

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36. Docks at Alexandria during a quiet time

Ambulance trains for conveyance of casualties to Cairo drawn up beside the hospital ship *Grantully Castle*.

Lent by Sgt. O. P. Kenny, 3rd Fld. Amb.
Aust. War Memorial Collection No. A1736.

37. Australian light horsemen at Alexandria docks placing stretcher cases in the train for Cairo

Lent by Sgt. O. P. Kenny, 3rd Fld. Amb.
Aust. War Memorial Collection No. A1740.

To face p. 173.

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(naval).[16] The selected transports—*Caledonia, Aragon,* and *Dongola*—were fine liners and had received both medical personnel and equipment. On the 25th, however, through an error, the only hospital ship present was the naval ship *Soudan,* and to her, by courtesy of the navy, were collected the wounded taken by tows returning from beaches to the battleships, whence they were afterwards redistributed.[17]

From the morning of the 26th, the *Sicilia, Delta,* and *Guildford Castle* cleared the *Soudan,* and received, classified, and distributed the wounded coming from shore. The *Guildford Castle* (which, in response to General Birrell's urgent request, had been diverted by General Maxwell from the regular service of hospital ships between France and India and hastily staffed and prepared for Europeans for the Gallipoli landing) arrived at Mudros on the 24th. She was intended for Anzac, but on the 26th was sent to Helles, where for a week she acted as a "floating clearing station." Cases received a certain amount of surgical treatment, and the less serious were transferred to the temporary hospital ships. On the 29th the *Sicilia* and *Delta* and the transport *Aragon* were sent to Egypt; others followed.[18] Except the hospital ships *Somali* (Royal Naval Division) and *Soudan* (naval), all hospital ships and transports were sent, as at Anzac, direct to Egypt.

April 29—First ships sent from Helles

On April 29th the lost transport *Hindoo* with the two stationary hospitals on board was "discovered" lying off Helles, and received orders to report to H.M.S. *Queen.* That night the *Hindoo* reached Anzac: the two sections of No. 2 Australian Stationary Hospital were transferred to two selected transports. On the first (the *Devanha*) at a few hours' notice wounded arrived continuously till May 2nd, when she sailed for Egypt. On that day occurred the costly attack on Baby 700, 1,083 casualties being sent off in three days. The hospital ship *Gascon,* having arrived back on May 2nd, took wounded from 3.30 a.m. on the 3rd. Among these ten deaths occurred

Hindoo found

[16] The hospital ship *Somali* cleared the Royal Naval Division both at Anzac and Helles.

[17] *See note on p. 151.*

[18] In all, from April 29 to May 5 three hospital ships left Helles with 1,443 cases and two temporary hospital ships with 1,913.

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by 11 a.m. On the same day "B" section No. 2 Stationary Hospital, with full equipment, was placed by order of the Senior Naval Medical Officer in the clean and excellent *Gloucester Castle*. The *Gascon* sailed on the 5th with 465 wounded, of whom 31 died; the naval hospital ship *Soudan* replaced her for a few days. On the 7th the *Gloucester Castle* left with 765.

"Depot Ships"—No. 2 A.S.H. used

On May 6th the D.D.M.S., Lines of Communication, was placed in charge of the beaches at Helles, and the A.D.M.S., L. of C., took up duty at Anzac as "A.D.M.S. Beach and Embarkation Medical Officer" ("E.M.O."). Field ambulances straggled back from the base and a new and not less eventful stage began. Meanwhile at Helles No. 16 British Stationary Hospital had been transferred from the transport *Hindoo* to the 13,000-ton troopship *Alaunia*, which became "Dépôt Temporary Hospital Ship" for lightly wounded. The plan of sending Australian wounded to her did not commend itself to the authorities at Anzac, and the transport *Dongola*, which had been detailed for that purpose, was used for serious and lightly wounded as an ordinary "temporary hospital ship."

For the important operations on May 6th, 7th, and 8th, at Helles, through delay in the return of the hospital ship *Sicilia* there was available only one troopship, the *Southland*, already partly full. On the 6th the transports *Franconia* (18,150 tons, the most important medical transport unit in the Mediterranean) and *Braemar Castle* were staffed from No. 16 Stationary Hospital. By the 8th all three were becoming crowded. No hospital ship had arrived, and nine naval surgeons were lent for temporary duty in these transports.

May 6-9—Congestion at Helles

Evacuation of wounded of the 2nd Australian Brigade began on the 9th to the *Southland*, and by midday all transports were full. As already mentioned, the D.M.S., M.E.F., then ordered, first, the lightly wounded, and, later, all wounded to be held on shore, but in spite of this some were sent off and remained during the following night in small craft. The *Franconia* with 1,616 cases (300 "serious and dangerous") left on the 9th: the *Southland* (760) on the 10th, with

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most of the Australian wounded on board and with a staff of three medical officers and twenty other ranks. On the 10th the hospital ships *Sicilia* and *Guildford Castle* arrived.

In these operations of May 6th-8th evacuation at Helles closely resembled that from the Landing at Anzac. A naval officer who worked in the *Southland* has reported that "in the absence of hospital ships cases of all degrees of severity had perforce to be sent to the transports: many of such severity . . . (as) to require proper hospital treatment, which it was impossible to give."

The failure at Krithia precluded for an indefinite time any hope of establishing hospitals on the Peninsula, and on the 12th the staff of No. 1 Australian Stationary Hospital, with seven tons of equipment, was sent to Helles and placed in the Dépôt Ship *Alaunia*.[19] At Anzac the field ambulance tent divisions, most of which had been diverted for duty on the lines of communication, on return from Egypt in the ships in which they had been working, were concentrated in one troopship and found themselves again lying off Anzac Cove, where they were used as a floating reserve for Dépôt Ships and for a further series of trips to the base. For this purpose the practice was to transfer them as "details" from ship to ship. Arriving on May 12th, the 1st Light Horse Field Ambulance was taken over for this transport duty.

Failure admitted—new outlook adopted

On May 13th, to free these units and No. 15 British Stationary Hospital, the D.M.S., M.E.F., cabled the War Office for twenty medical officers and 100 other ranks for "transport service," and to Egypt for civilian doctors and the first reinforcements of the R.A.M.C., which only now were arriving. At Anzac the dirty storeship *Seang Bee* and the transport *Seang Choon* were used as Dépôt Ships: subsequently the fine *Dunluce Castle* was so employed. Recovered cases were transferred by picquet boat to shore; serious cases and "all sick and wounded not likely to be well in two weeks" were transferred to hospital ships (when present) or to temporary hospital ships, which had instructions to sail "when full." The wounded were decreasing,

[19] This vessel held on the average 1,800 cases daily. Between May 3 and 19 774 were returned to duty.

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the sick—"chiefly influenza and diarrhœa"—increasing. Thus early appears the writing on the wall, foretelling the real medical *débâcle* of Gallipoli.

"U"-Boat arrives

On the 12th Colonel J. Maher, R.A.M.C., was definitely appointed—by the D.M.S.—Deputy-Director of Medical Services, Lines of Communication, and Lieutenant-Colonel G. St. C. Thom, R.A.M.C., Assistant-Director of Medical Services. As such, they controlled evacuation from Anzac and Helles respectively. Amid this reorganisation the whole outlook of the campaign, as well as the immediate problem, was changed in the second week of May by an event which, though foreseen by the navy, had not entered seriously into military calculations but ultimately compelled a far-reaching change of medical plans. This was the arrival of the German submarines, of which warning was received from Gibraltar on May 7th. There ensued a fortnight of the greatest confusion. The transports which had lain confidently off the beaches were hurriedly sent behind the boom at Mudros, and the supply ships for Anzac to the little harbour of Kephalos. Hospital ships, and for a short time temporary hospital ships, remained; but on the 18th the *Alaunia* was transferred to Mudros. A local ferry-service of vessels of small tonnage known as "sweepers" formed a link between the small craft from the beach and the transports at Mudros.

The fundamental defect—shortage of hospital ships

At the same time with these readjustments there came, somewhat tardily, recognition of the fact that, without advanced base or lines of communication, an evacuation scheme based chiefly on "Black Ships" was inadequate to ensure either prompt return of light cases to duty or the safety and welfare of the seriously wounded. Convalescence on Dépôt Ship had worked badly. Of the many slight cases which left Anzac, though a few had been sent back, many remained at the base. For the severely wounded the scheme was even less effective. From the first, as will have been seen, there was urgent medical need at the roadsteads of the Peninsula for more hospital ships, and their scarcity had, from the outset, handicapped the scheme of evacuation. At this stage, however, the scheme was entirely

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crippled by the decision, not of the M.E.F. or of any authority having any real cognisance of conditions at the roadsteads, but of the G.O.C. Force in Egypt, who controlled these vessels. On May 8th he wrote to the G.O.C., M.E.F.:

> For the short journey from the Dardanelles to Alexandria it is not necessary to have the fitted hospital ships; these are badly wanted to evacuate to England, and we must evacuate, or we shall be overwhelmed. We have also to deal with Indian sick and wounded from France; the wounded come from the Dardanelles all right in ordinary transports.

The assumption that only the short journey was concerned must be regarded as an error; what was really at issue was treatment during the whole critical first week. As the result of action taken in accordance with this decision, from May 17th until complete reorganisation of the system of hospital ships Anzac and Helles were often left without one.

An account of the measures taken to meet these various problems must be deferred till a later chapter. It is necessary now to follow to the base the wounded from the landings.

Voyage to base—a vital interval

The voyage to Alexandria took two days, and was at first free from enemy risk: but by the middle of May all Black Ships were liable to be submarined. At this time, and throughout the summer, the sea was almost always smooth. The two days' voyage was very momentous for life or death to the seriously wounded on board the Black Ships, and the surgeons' judgment and restraint were of more importance than technical skill. Still more important were the ability to organise resources, and amid the conflict of urgent needs to discern the essential and evolve order out of chaos. The surgeons whose work during these strenuous and difficult times stands out as most successful were not those whose operations were most numerous. In the amazement of the utterly unimagined circumstances some men lost their heads and, forgetful of the fundamental surgical principle "*non nocere*," operated wildly. In one temporary hospital ship a surgeon of distinguished ability records only two operations on the voyage—one for subdural hæmorrhage, another an amputation at the shoulder for gangrene—but "we had dressed every patient, some three or four times, and put up fractured thighs, legs, and arms, and every patient was seen and made

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comfortable." A full classification showed in this vessel twenty to thirty per cent "very serious," ten to twenty per cent "very slight." As in France at this time, femur cases had little hope in the absence of "Thomas" splints. "Chests" who got over the initial shock did well. "Abdominals" did badly, as did also "heads"—the conditions gave them no chance.

Of the Anzac casualties up to April 30th 25.2 per cent were killed, and of 5,236 evacuated 180 died of wounds at sea.[20] In consequence of the early despatch of the first five transports,[21] the Anzac wounded reached the base two days before those from Helles. This occurrence was severely criticised by the D.M.S., M.E.F., who attributed the "failure of the evacuation at Anzac" to the "sending away of the transports earmarked for Australian wounded when they were only half full."[22] This attitude toward the severely wounded characterised the policy of the D.M.S., M.E.F., throughout, and was at the root of many of the events which brought unfavourable criticism on the medical arrangements. In a medical man it is one that, to say the least, demands some detachment of mind to understand, however much he may be dominated by the military aspect of his responsibility. By any standard, the condition of the dangerously wounded in the transports at Anzac on April 27th made their removal to the base an urgent matter. On only one —the *Ionian*—was the number then carried afterwards exceeded, even when the ships were fully staffed. Many lightly wounded, it is true, were carried to the base, and many

[20] Very discrepant casualty figures have been arrived at for the Landing. The British official statistical abstract cannot be accepted as correct for the Anzac Corps, though probably approximately so for the 29th Division. The following table has been compiled from various sources:—

CASUALTIES AT ANZAC, APRIL 25–30 (INCLUSIVE).

	Killed in Action.	Died of Wounds.	Wounded.	Total Casualties.
Australians	965	161	4,114	5,240
New Zealanders ..	275	78	698	1,051
R.N. Division ..	12	7	244	263
	1,252	246	5,056	6,554

Up to and including May 3 the Australian Official Historian records the following figures—8,500 killed and evacuated wounded, of whom 2,300 were killed or died of wounds. Of these casualties about 600 were in the Royal Naval Division.

[21] Through the action of the Rear-Admiral, Naval S.M.O., and D.A. & Q.M.G., Anzac, on April 27-28, *see p. 170.*

[22] It will be recalled that the ships, when loaded, were not to be despatched for 48 hours. But this provision had been made solely with the object of having them to hand in case an evacuation of the Peninsula became necessary, and it was out of the question when these ships were despatched on April 28.

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moderately severe wounds required no surgical interference. But many urgently required an attention impossible in the transports. For all seriously wounded men hospital ministrations within four days should not have been considered too high an ideal. The severity of the cases carried in the transports is shown by the fact that up till May 3rd there died at sea 3.5 per cent of all cases carried; of those carried by hospital ship, 2.5 per cent.

Responsibility for conditions on the transports

In general a painful impression was created in Egypt by the condition of the seriously wounded arriving in most of the transports, and by the discomfort and squalor. Though the latter loomed large to the layman and influenced the representations which reached the War Office, in view of the great difficulties involved and the safety insured it must in itself be regarded as a minor evil. On the other hand, the good general condition of a large proportion of the cases, and the fact that all had been "dressed," led those in authority at the base to take an unduly optimistic view of the conditions under which the seriously wounded were being cared for. The matter is largely one of the point of view. The primary cause for the inadequate provision of transports for the wounded, and of equipment and staff in selected transports, undoubtedly was the failure by the general staff, who made the arrangements, to foresee the magnitude of the problem. The plans of the administrative staff, which themselves were probably inadequate, had never been operative: even the gale which delayed the units in the *Hindoo* had only been incidental to this failure. The real mistake was the original refusal by the general staff to order up these units, the subsequent tardiness in doing so, and the elimination of the staffs of the services of maintenance from any control during the landing operations. These mistakes—if "mistakes" they were, from a military standpoint—on the part of the general staff were in their turn partly due to the haste with which the expedition had been organised. Had the campaign been launched with more forethought and less hurry, there is no reason why much of this, as of its other troubles, should not have been avoided. As it was, to a certain extent evacuation was "successful" on the military side in proportion as it failed on the humanitarian.

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ARRIVALS AT ALEXANDRIA FROM LANDING OPERATIONS.
FROM ANZAC.

Name and Gross Tonnage of Vessel.	Horses Carried.	Medical Personnel.			Date first Wounded came Aboard.	Date of Departure.	Date of Arrival at Alexandria.	Numbers Embarked.	Deaths.	Numbers Arrived.	Remarks.
		Off.	O.R.	Nurses.							
H.S. *Gascon* 6298	..	6	38	7	25.4.15 (7 a.m.)	26.4.15 (6 p.m.)	29.4.15 (8.30 a.m.)	548	14	534	Vessel left again for Anzac on 29th
T. *Clan Macgillivray* 5023	..	2	22	..	25.4.15 (9 a.m.)	27.4.15	29.4.15	860	15	845	600 redirected to Malta. Staff—M.O's from No. 2 A.G.H., other ranks (2 N.C.O's and 20 men) from 1st and 3rd F. Ambs.
T. *Seang Choon* 5807	..	3	15	..	25.4.15 (4.30 p.m.)	27.4.15	29.4.15	666	19	647	Staff—M.O's from No. 16 B.S.H.; O.R. from No. 2 A.S.H.
T. *Lützow* 8826	.. 130	2	3	..	25.4.15	27.4.15 (5 p.m.)	29.4.15	490	15	475	Staff—N.Z.M.C.
T. *Ionian* 8268	.. 46	4	9	..	25.4.15 (6 a.m.)	27.4.15	30.4.15	427	11	416	Staff — from 1st A.C.C.S. In addition, 10 O.R. (3rd F. Amb.) in charge of horses.

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T. *Itonus* .. 5340	16	3	23	..	25.4.15	27.4.15 (5.30 p.m.)	30.4.15 (1 p.m.)	487	21	466	Staff (from 3 p.m., 27th) "A" and "C" sections, 1st F. Amb.
T. *Derfflinger* 9144	..	2	10	..	27.4.15	29.4.15 (6 a.m.)	1.5.15 (6.30 a.m.)	566	30	536	Staff — "B" section, 1st F. Amb. and O.C., 4th Advanced Dépôt of Medical Stores
T. *Galeka* .. 6772	..	2	20	..	27.4.15	30.4.15	2.5.15	493	33	460	Staff — "C" section, 3rd F. Amb.
T. *Mashobra* .. 8174	240	4	59	..	29.4.15	1.5.15	3.5.15	405	15	390	Staff—Tent division, 2nd F. Amb.
T. *Devanha* .. 8092	79	4	35	..	30.4.15 (11.30 p.m.)	2.5.15 (4 p.m.)	4.5.15 (4.30 p.m.)	405	15	390	Staff — "A" section. No. 2 A.S.H.
T. *Dongola* .. 8056	..	2	46	..	1.5.15	4.5.15	6.5.15	569	12	557	Staff — from No. 15 B.S.H.
H.S. *Gascon* .. 6298	..	6	38	7	3.5.15 (3.30 a.m.)	5.5.15	7.5.15	475	41	434	
T. *Gloucester Castle* 7999	..	3	36	..	3.5.15 (7 p.m.)	7.5.15 (7 a.m.)	9.5.15 (2.30 p.m.)	765	32	733	Staff — "B" section No. 2 A.S.H.
Total ..	..	..	..	..	..	..	..	7,156	273	6,883	

Note.—No other until T. *Lützow* departed May 11, arriving Alexandria May 13.

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ARRIVALS AT ALEXANDRIA FROM LANDING OPERATIONS.

FROM HELLES.

Name and Gross Tonnage of Vessel.	Horses Carried.	Medical Personnel.			Date first Wounded came Aboard.	Date of Departure.	Date of Arrival at Alexandria.	Numbers Arrived.	Remarks.
		Off.	O.R.	Nurses.					
H.S. *Sicilia* 6702 ..	..	6	26	12	25.4.15	29.4.15	1.5.15	399	Redirected to Malta
H.S. *Delta* 8089 ..	..	6	38	..	26.4.15	29.4.15	1.5.15	510	Redirected to England
T. *Aragon* 9588 ..	..	3	20	..	26.4.15	29.4.15	1.5.15	1,061	641 (including 150 French) redirected to Malta
H.S. *Guildford Castle* 7995	..	6	38	4	26.4.15	2.5.15	4.5.15	504	Redirected to Port Said to disembark
T. *Caledonia* 9223 ..	..	3	20	..	25.4.15	5.5.15	7.5.15	818	700 redirected to Malta
Total ..	.	..	..	..	..	..	..	3,292	

Note.—The records of embarkations and deaths on these vessels are unobtainable. No other until T. *Franconia* departed May 9, arriving Alexandria May 11.

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ARRIVALS AT ALEXANDRIA OF CASUALTIES FROM GALLIPOLI AND FRANCE, 28TH APRIL TO 9TH MAY, 1915, AND THEIR EVENTUAL DISTRIBUTION.

Date.	Arrivals from—			Distribution to—				
	Gallipoli.	France.	Total.	Cairo.	Alexandria.	Malta.	England.	Total.
April 28 ..	257	..	257					
„ 29 ..	2,501	..	2,501	998	2,390	600	..	3,988
„ 30 ..	882	348	1,230					
May 1 ..	3,104	..	3,104					
„ 2 ..	460	..	460					
„ 3 ..	390	..	390					
„ 4 ..	1,029	..	1,029					
„ 5 ..	..	522	522	2,569	2,797	1,740	1,100	8,206
„ 6 ..	557	..	557					
„ 7 ..	1,355	..	1,355					
„ 8 ..	..	..	..					
„ 9 ..	789	..	789					
Totals ..	11,324	870	12,194	3,567	5,187	2,340	1,100	12,194

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CHAPTER X

THE LANDING: EXPEDITIONARY BASE

THE responsibility under the Director-General at the War Office for making provision for the reception and distribution of casualties from Gallipoli fell entirely on the D.M.S. for Egypt. In neither case did the preparations made prove adequate to meet the situation created by the Landing. In Egypt this called for the provision, not only of sufficient beds for the immediate casualties, but for a reserve to meet the subsequent inflow. Such a reserve was not prepared by the time the wounded arrived: the hospital ships available were insufficient to ensure that England should be regularly used as the destination for convalescents and invalided men; no local system of convalescence was arranged, and the organisation in connection with "return to duty" was imperfect. The history of the first month, therefore, was one of improvisation, of hand-to-mouth expansion, of ministrations by inadequate staff under unsatisfactory conditions, and of overflow to England and Australia of cases that should have been retained, while invalids who should have been sent home were retained and accumulated.

* * *

Final preparations—divided control

The hospital ship *Gascon* arrived at Alexandria on April 29th, followed immediately by the first echelon of Black Ships from Anzac, with the first wounded from the Landing. Before proceeding to an account of their reception, distribution, treatment, and ultimate disposal, it is desirable to take up the narrative of events at the base at the point where it was left in a previous chapter—the departure of the D.M.S., M.E.F., for the front—and so to complete the description of the preparations.

General Hamilton's decision to make Alexandria his base, and the assent by G.H.Q., M.E.F., to the request that casualties not retained at the front should all be sent in the

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first place to Egypt, and that there they should come under the control of the D.M.S. for the Force in Egypt, divided the medical organisation of the expedition under two independent field commands—those of the M.E.F. (Hamilton) and Egypt (Maxwell). The D.M.S. for the Force in Egypt thus became responsible for the distribution, treatment, convalescence, discharge to duty, and invaliding of all wounded evacuated from the Peninsula, Malta being responsible only for taking the overflow from Egypt. Such an arrangement demanded, as a primary condition for success, closely co-ordinated action by the three commands—M.E.F., Egypt, and Malta—to serve the common end of rapid and effective evacuation and disposal of the Gallipoli wounded after they had left the roadsteads. This requirement was at first imperfectly fulfilled; the point of view was, somewhat narrowly, that of the Egyptian command.

Responsibility of Egyptian command

The result of this arrangement was that, rightly or wrongly, the War Office relied on receiving demands from Egypt, and its policy is summed up in the statement that it "supplied all that was asked for." The responsibility for gauging the requirements thus fell largely on the D.M.S. for Egypt. His solution to the problem of the provision to be made for wounded depended greatly on the extent to which light cases could be treated at the front—a method of disposal which would become possible only if the expedition succeeded; and success was expected with a confidence and to a degree hardly justified by the nature of the undertaking. Out of a force of 75,000[1] a reasonable estimate of the wounded, based on the ordinary military calculations,[2] would have been

[1] The effective strength of the force on April 25 (excluding French) was approximately 75,000, made up as follows:—British 35,000, Australian 32,500, and New Zealand 7,500.

[2] "With regard to the wounded, the number to be dealt with after a general engagement is not likely to be more than 20 per cent of the troops engaged or less than 5 per cent, excluding those that are killed outright and missing. In estimating the probable number of total casualties after any battle . . . 10 per cent of three-fifths of the total force may be taken as a guide, the three-fifths representing the proportion of the force which will probably be engaged. Of the total casualties it may be estimated that 20 per cent will be killed outright (*i.e.*, one killed to four wounded), 10 per cent will be so slightly wounded as not to require evacuation and may be retained in field medical units if the military situation permits, while 70 per cent will require hospital treatment. Of those requiring hospital treatment 70 per cent will be suitable for treatment in L. of C. medical units, while 30 per cent require to be evacuated to home territory." (*R.A.M.C. Training 1911, par 264 and footnote.*)

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9,000, of whom at least 2,000 would require to be invalided. The remoteness of the expeditionary base from the home base would require also that provision should be made not only for immediate casualties, but for a continuous subsequent inflow of sick and wounded from casual fighting and subsequent battles. This inflow would be coincident with the treatment of those first admitted, so that—even with an effective system of convalescence, return to duty, and invaliding—a large potential reserve of accommodation would be necessary for equilibrium.

Accommodation and facilities

Accommodation in Egypt was concentrated chiefly at two centres—at Alexandria and Cairo. On April 16th the D.M.S. for the Force in Egypt issued instructions that, in general, Australian casualties were to go to Australian hospitals, but "bad cases unfit to travel the distance" were "to be retained at Alexandria in a British general hospital."[3]

Alexandria

At Alexandria was the Base of the Mediterranean Expeditionary Force, and the administrative system there was very involved; but a working agreement was reached whereby the A.D.M.S., M.E.F. Base (Colonel Sexton), was made responsible for reception of wounded and disposal at the docks, and the A.D.M.S., Alexandria (Colonel Beach, under the D.M.S. for the Force in Egypt), for the hospitals. The establishing of Nos. 15 and 17 British General Hospitals proceeded with great thoroughness, though slowly. By April 25th No. 15 was fairly ready, but No. 17 was delayed by a dispute as to buildings, and on the 24th the A.D.M.S., M.E.F. Base, found that it "could hardly be ready for three weeks." The nursing establishment which was lacking for these two units was supplied in part by nurses from No. 2 Australian General Hospital and from those enlisted in Australia for the Q.A.I.M.N.S., who were now arriving. In addition to these two military hospitals certain local hospitals, civil and military, were made available. No convalescent dépôt was formed.

[3] The "Bombay Presidency" Hospital, San Stefano (Alexandria), with its staff (Indian Medical Service) was handed over as a "general hospital" of 500 beds for French casualties to the Armée Expéditionnaire de l'Orient under the command of General A. d'Amade.

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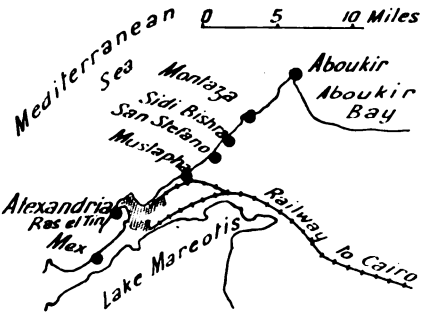

The facilities at Alexandria as a port of disembarkation could hardly have been surpassed: the centuries had seen many such occasions, and the experience had been of service. Four ships could be simultaneously cleared direct to ambulance trains or vehicles. On April 24th a precise scheme was issued by the military embarkation officer. For local distribution fourteen Australian and New Zealand motor ambulance waggons were available, and for transportation to Cairo (200 miles) three well-equipped Egyptian Army ambulance-trains, each with a capacity of 120, under a special medical officer and with Australian nurses in attendance.

The potentialities of the Cairo area lay in certain garrison and civil hospitals and the two Australian General Hospitals.

Cairo

Though apparently no exact calculation had been attempted of the provision necessary for Australian wounded (the D.M.S. for the Force in Egypt having maintained a policy of "wait and see"), it had been realised by responsible Australian officers that a disaster would be avoided only by preparation for rapid expansion when consent should be forthcoming. In connection with No. 2 General Hospital, little could be done. Mena House was full; under the arrangements made by the D.M.S. for Egypt Ghezireh Hotel could not yet be touched. But at No. 1 General, at Heliopolis Palace Hotel, preparations proceeded with great vigour. The long corridors of rooms were cleared of furniture and fitted up as composite wards, and the sick were concentrated. Expansion of this hospital to 2,000 beds was approved by the D.M.S., A.I.F., who accordingly on April 16th cabled through the High Commissioner in London for the despatch from Australia, at the earliest possible moment, of 20 medical officers, 40 nurses, and 250 other ranks. To make "Luna

No. 1 A.G.H. expands

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Park" available for wounded, an adjoining building, the "Casino," was taken, and on April 26th all infectious cases were transferred thither. Arrangements were made for the delivery, at the rate of 100 per week, of palmwood beds and cotton-wool mattresses; all the available supplies of other equipment were obtained and stored in the Heliopolis Palace Hotel. A contract was made with a Cairo firm for catering for the auxiliary hospitals, since the staff there available was quite inadequate. The tram-line being of the same gauge as the railway, it was used to bring ambulance trains within 100 yards of the hospital.

Preparatory clearance

Steps were taken to clear the hospitals of such cases as could be moved. To release their staffs, the two venereal camps (at Mena and the Aerodrome) were closed, and the dregs from the venereal outbreak were concentrated at the Detention Barracks, Abbassia, which was staffed as a "hospital."[4] On April 27th the Minister for Defence agreed to the cabled request of the D.M.S. for the Force in Egypt that "all cases of venereal should be transferred to Australia, since it was urgently necessary to relieve hospital pressure." Two hundred and sixty-one cases left by the troopship *Ceramic* on May 4th; the majority of these were well on arrival in Australia. Débris from the respiratory epidemic still clogged No. 2 General Hospital, where bed-cases awaiting invaliding were retained. On April 27th a clearance from it was made by the troopship *Sucvic* of 108 men declared by the hospital boards to be "medically unfit."[5]

Training depot formed

Meanwhile the organisation for the ultimate disposal of A.I.F. casualties by "return to duty" was slowly emerging from the melting-pot into which it had been thrown by the transfer of control from the Mediterranean Expeditionary Force to the Egyptian command and from the Australian Intermediate Base Dépôt to Major-General Spens. Under this officer, and within the Egyptian command, an "A. & N.Z. Training Dépôt" was formed with camp and camp headquarters

[4] With one officer from No. 2 A.G.H. and a warrant officer, staff-sergeant quartermaster, and staff-sergeant dispenser from No. 1, all other duties and treatment being carried out by the patients themselves.

[5] Staff for the voyage consisted of one medical officer and five other ranks drawn from No. 2 A.G.H.

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at Zeitoun, at first as a skeleton organisation and without establishment and personnel other than those of a headquarters and a small British instructional staff. On April 19th a general order of the Egyptian command placed under the administration of General Spens all Australian units in Cairo except the Australian Intermediate Base Dépôt, whose details camp, however, was included in the training dépôt. It was indeed this base details camp, together with new Australian and New Zealand units arriving in Egypt, that constituted the "training dépôt," the organisation of the camp being under Colonel Sellheim and that of the training under General Spens. The camp was transferred to Zeitoun on April 19th, and became known as the "A. & N.Z. Base Details"; it was organised into training battalions—one representing each brigade of the A.I.F. and New Zealand force—and "details." Into the training battalions went all reinforcements, and to them also were transferred convalescents discharged "to duty." "Details" received all others, including invalids (other than the bedridden) awaiting embarkation. New units and formations, also arriving from Australia, came under the administration of General Spens. A New Zealand medical officer was attached to the Headquarters of the training dépôt as "A.D.M.S.," and another New Zealand officer was appointed to command the base details, having under him one Australian medical officer as an "S.M.O.," with a few medical orderlies. Neither the training dépôt as a whole, nor its base details, had any definite medical establishment.

"Base details" and "return to duty"

The decision that, in the absence of an effective system of convalescence in Egypt, Australian sick and wounded should be sent to convalesce in England, necessitated provision for large numbers of Australians in Great Britain. The D.M.S., A.I.F., accordingly cabled through the High Commissioner for authority from the Defence Department to provide "convalescent homes" for 1,000. He also obtained permission from the G.O.C. Force in Egypt to proceed himself to England in order to make arrangements

Lack of hospital ship necessitates convalescence in England

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both for this purpose and for invaliding to Australia. He embarked on the 24th, retaining his office in Cairo and leaving his small office staff as a "going concern"; meanwhile the officer commanding No. 2 General Hospital (Colonel T. M. Martin) was approved by the D.M.S. for Egypt as "S.M.O.," A.I.F. The Red Cross funds and dépôt were put in charge of the registrar of No. 1 General Hospital (Major Barrett).

This result of its decision not to supply hospital ships had not been foreseen by the Defence Department in Australia. On receipt of the above-mentioned request the acting D.G.M.S. in Melbourne represented that "it will be very expensive to keep men in England and return them after convalescence to Australia," and urged that all of those able to stand the journey should be returned to Australia direct. This message was transmitted to the Egyptian command on May 2nd, with the intimation that medical and nursing personnel were being sent to staff special transports, which, it was expected, would ply regularly between Australia and Egypt. But the working of the British war machine could not be dislocated because Australia had not seen fit to spend money on hospital ships and was desirous of saving the expense of convalescence in England.

Total accommodation

By the time the first wounded arrived, there was in Egypt a total of some 3,000 to 4,000 first-class beds actually available, and of some 5,000 to 6,000 more "on paper," for which accommodation was available and equipment had been accumulated. Australian units were credited with at least 2,000 more beds than were in fact ready. In Malta 500 first-class beds were ready, but buildings were available for 3,000 more, and required only staff; approval had been given for the provision of personnel and equipment for 1,200 beds. At the end of April these had left England, and personnel and stores for 3,000 additional beds were to be sent. The D.G.A.M.S. at the War Office had expected that this British possession, with its fine climate and facilities, would prove "an important medical base."[6]

[6] It is probably to be regretted that, when debarred from Alexandria, No. 2 A.G.H. was not used to effect a development of Malta which for some months "hung fire" through an extreme exploitation of Egypt.

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Sick arrived from No. 1 Australian Stationary Hospital at Lemnos to the number of 183 on April 17th and of 257 on the 28th, and these were sent to No. 1 General. On the 29th, with forty-eight hours' notice, the hospital ship *Gascon* arrived; and within the next forty-eight hours the five troopships despatched by the D.A. & Q.M.G., Anzac Corps (General Carruthers), brought 2,849 casualties from Anzac. Of these the *Clan Macgillivray,* with 600 of her light cases, was redirected to Malta (some 200 being taken back to Gallipoli as "fit for duty" without having disembarked); the other four ships landed all their casualties at Alexandria, so filling all the accommodation immediately available in Egypt. On May 1st there arrived in the hospital ships *Sicilia* and *Delta* and the troopship *Aragon* the first wounded from Helles; at the same time the second echelon of transports from Anzac began to arrive. Only 520 wounded from Helles could be disembarked in Egypt. The *Aragon* and (with unfortunate results) the *Sicilia* were sent to Malta: the *Delta* proceeded to England with British casualties from Helles and some Australian wounded, transferred from No. 17 General Hospital, many of whom arrived in England "fit for duty." The hospital ship *Goorkha*—just arrived with Indian invalids from France—filled direct from the transport *Galeka* and went to England, as did also the hospital ship *Letitia.* On the 7th the *Gascon* on her second trip discharged her wounded at Alexandria; but the transport *Caledonia,* with 818 from Helles, was redirected to Malta with all but 118 cases. This vessel, with a staff of three officers and twenty orderlies, had held her wounded for a fortnight, and arrived at Malta on May 10th, carrying two cases of tetanus and in a condition so deplorable that it was made the subject of a grave report to the Director-General, Army Medical Services, at the War Office and of a strong representation by the Governor of Malta (Field-Marshal Lord Methuen) on the desirability of evacuation direct from Gallipoli. Within the first week it had become manifest that provision at the base had fallen far

Wounded arrive and flow to Egypt, Malta, and England

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short of prospective requirements, whether for accommodation or for clearance overseas. The lack of accommodation was largely due to failure to provide a full quota of hospitals for the A. & N.Z. Army Corps; the defects in clearance were due to deficiency in hospital ships. Moreover, the problem of the sea-transport of wounded would now be complicated by the submarine menace. On May 9th the G.O.C. of the Force in Egypt cabled the War Office for two more 1,040-bed hospitals, and informed the G.O.C., M.E.F., that he was obliged to take all but two hospital ships from the Gallipoli service for the work of clearing his base.

Immediate difficulties in Egypt

On disembarking their wounded, the "returning empty" vessels which had been employed as temporary hospital ships reverted automatically to troopships or cargo boats. All the first "Anzac" transports returned at once without replenishing their medical stores. Little or no provision was at first made at the base for re-equipping these ships to take wounded, since no arrangements existed for the systematic employment of this class of vessel: it was nobody's business in particular. By the D.M.S. for the Force in Egypt, at the base, it was taken for granted that ships would be equipped for wounded by the Mediterranean Expeditionary Force as required; on the other hand, the uncertainty involved in divided control led to a corresponding assumption by the D.M.S., M.E.F.

By the second week, however, though the pressure at the docks was great and accommodation was being provided in a hand-to-mouth fashion, the base was working with fair smoothness. Thus No. 2 Australian Stationary Hospital, arriving on the 9th in the transport *Gloucester Castle* with the last wounded from the Landing operations, was quickly cleared; the mules and horses put ashore;

Matters improve

a supply of Red Cross goods obtained through Surgeon-*General* Williams' office from goods stored at Alexandria; mattresses, blankets, etc., were disinfected through the local health authorities; kits and belongings of wounded and deceased handed over to Base Headquarters; stores, drugs, dressings, and equipment replenished from the Base Medical Stores at Alexandria; and equipment and personnel transferred to the *Franconia* on the 10th.

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38. THE ARRIVAL OF ONE OF THE FIRST AMBULANCE TRAINS AT HELIOPOLIS, MAY 1915

In the foreground is the Australian motor ambulance "fleet." The photograph was taken from the Heliopolis Palace Hotel.

Lent by Lieut.-Colonel Hon. Sir S. S. Argyle, A.A.M.C.
Aust. War Memorial Collection No. H13988.

39. No. 2 AUSTRALIAN AUXILIARY HOSPITAL IN THE "ATELIER," HELIOPOLIS, SHOWING THE ANGERIB BEDS

Lent by Major H. Flecker, A.A.M.C.
Aust. War Memorial Collection No. A2708.

To face p. 192.

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40. No. 2 Australian General Hospital, 1915, at the Ghezireh Palace Hotel

Lent by Lieut.-Colonel J. W. Springthorpe, A.A.M.C.
Aust. War Memorial Collection No. A2725.

41. The Australian convalescent dépôt in the Al Hayat Hotel, Helouan

Lent by Warrant Officer G. R. Gibbs, A.I.F.H.Q.
Aust. War Memorial Collection No. C10.

To face p. 193.

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In this latter vessel had come 1,614 wounded from the Krithia fighting, of whom 1,080 were sent to Cairo. By the 13th the last of the Krithia wounded had arrived, 846 being redirected to Malta, 2,403 retained. Up till May 11th 15,704 cases had reached Alexandria, of whom 1,100 were sent at once to England, and 3,186 redirected to Malta; out of those retained, 6,771 were held in Alexandria, 4,647 sent to Cairo. Of the latter the great majority were taken to Australian hospitals, chiefly No. 1 General. The disposal of so great a rush of wounded would under any conditions have been a difficult matter, and though the preparations may have been tardy and hesitating, there was no lack of energy in facing the problem when the cases began to arrive. There is no question that the important and difficult duty of disembarkation was admirably carried out. The hospital ship *Gascon*, for example, after berthing at 8.30 a.m. on the 29th, left for Gallipoli the same day. The "S.M.O." of the troopship *Derfflinger* records—

Disembarkation well done

> Arrived 6.30 a.m. Alexandria, a most blessed haven of refuge. Disembarkation managed excellently by No. 1 East Lancashire Territorial Field Ambulance. Began to clear 12.30 p.m., quite cleared by 8 p.m.

"The scene at the docks" (to quote the A.D.M.S. at Alexandria) "beggared description; base details men, convalescents, and spare men of all kinds, including natives, were employed to supplement the small dock's personnel, and worked till exhausted." On May 2nd, with the rush at its height, the 1st East Lancashire (Territorial) Field Ambulance was ordered to Helles with its brigade, its place being taken by details from the Australian light horse field ambulances. Voluntary workers of all nationalities and social status were numerous, and their ministrations have received great commendation.

The distribution of cases between the Alexandria and Cairo groups is shown in the summary at p. 183. The arrangements for disposal were dislocated by the fact that during the first two days only Anzac casualties arrived, and that, out of 7,884 disembarking from Gallipoli by May 9th, 5,914 were "Anzacs," who filled not only the beds

Alexandria—initial difficulties

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allocated in the hospitals at Alexandria for seriously wounded Australians, and those prepared in the Australian hospitals in Cairo, but also a large proportion of the total accommodation immediately available in Egypt.

From the transports wounded were transferred direct to ambulance-waggons for local distribution, or to trains for Cairo. Of the first batch, arriving by the hospital ship *Gascon*, only sixty cases were found sufficiently serious to be kept in Alexandria; but, as successive transports were unloaded, the cases, being more severe as well as unclassified, became more difficult to deal with. At the same time, the capacity of the ambulance trains being limited, the two M.E.F. base hospitals rapidly filled with Australian and New Zealand wounded. No. 17 British General Hospital was still in the throes of preparation, and, to quote an Australian nurse, "the idea of bringing wounded men into such a place of unpreparedness seemed almost impossible." Both hospitals were, however, commanded, and for the most part staffed, by British regular officers with a highly trained personnel, while the British and Australian nursing staff, though small, was very efficient. To an Australian nurse in No. 17 the condition of the wounded and the circumstances under which they were treated "stand out as the most trying that I have experienced during the war. The medical staff did not spare themselves; worked night and day." The death-roll was heavy. Many of the worst cases were treated in a fine civil hospital, where an Australian officer (attached) described the condition of the arriving cases in terms which accord with what might be expected from the circumstances of the voyage—

> Serious cases, if lucky, had their wounds re-dressed once . . . fractured legs without splints—septic leg a bag of pus—arms gangrenous to the shoulder; cases requiring urgent surgical intervention which could not be obtained till arrival in hospital.

Accommodation for the serious cases was made possible by passing on the less serious to a hastily organised "convalescent dépôt," staffed at first by personnel taken from No. 17 General Hospital. In this the conditions suffered from improvisation, though certainly not to such an extent as to justify

Convalescent depot formed

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the grave complaints which reached Australia and the Colonial Office as to the treatment there given to Australians. During the first month there was no respite; but under very able administration, and with units commanded and served with conspicuous efficiency, the conditions improved.

In Cairo the first train-loads were distributed from the Heliopolis tram-siding, a successful trial of bringing the train over the tramline having been made on the 28th, when the sick arrived from Lemnos. On the 29th there arrived 469 wounded from the *Gascon,* and these were admitted to No. 1 Australian General Hospital (the "Palace"); 250 of the slighter cases were transferred to No. 2 (at Mena House), whose commanding officer was now directed by the D.M.S. for the Force in Egypt to prepare Ghezireh Hotel for 200, authority being given to him to purchase palm beds.

Cairo— No. 1 A.G.H.

During the next three days 1,352 casualties arrived at Cairo, the majority passing through No. 1 General Hospital, where the well-organised scheme for expansion was put into operation. Luna Park was taken over, beds rapidly fitted up, and a staff of two officers, four Q.A.I.M.N.S. nurses (Australian), and eight orderlies installed. From the ambulance train wounded were conveyed by motor ambulance waggon to the "Palace" and, after being admitted in the great hall, were distributed to the wards or to the auxiliary hospital. By May 3rd Luna Park held 790 cases—for the most part in one huge hall. Only some 500 beds were available in the Heliopolis "Palace," and accommodation for serious cases was maintained by rapid transfer to the auxiliaries. This system was maintained in the further developments of the unit.

Important assistance was given by the bearers of the 3rd Light Horse Field Ambulance, the training of field units in the handling of wounded being much more exact than that in the general hospitals. Much also of the first surgical work fell to officers of this unit, since the surgical staff of the hospital, through dispersal from sickness and transfer, was represented by one senior operator only.

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At the end of a week the discovery was suddenly made that, while a proportion of cases could be discharged to the base details camp, for the great majority convalescent accommodation was necessary. Instructed by the D.M.S. for the Force in Egypt, on May 5th the registrar of No. 1 Australian General Hospital took over Al Hayat Hotel at Helouan, a winter health resort and baths twelve miles from Cairo. This place, by means of Red Cross goods and funds, was hurriedly equipped with mattresses and some palmwood beds for 500 convalescent cases, and was staffed with a few orderlies from No. 1. It was placed under command of a combatant officer, with an able civilian physician in charge, no military medical officer being available. Two hundred sick and wounded were admitted on the 11th. Within a few days of the Landing men were discharged in large numbers to the base details camp of the Australian and New Zealand Training Dépôt. Many of these, though discharged "to duty," were still unfit for the front. They completed their convalescence in that camp under inadequate medical control and with no systematic procedure for determining their fitness for the field—a decision which was at first left largely to the soldier himself.

Convalescent depot formed—but procedure loose

At No. 2 Australian General Hospital, Ghezireh, by May 15th 600 beds were ready, 474 wounded had been admitted; 3 deaths occurred, and 40 major operations were performed. Mena House, retained as an auxiliary, admitted 400. The total staff of No. 2 at this time was 14 officers, 51 nurses, and 133 others; that of No. 1 was 28 officers, 101 nurses, and 238 others.

No. 2 A.G.H.

The condition in which the wounded from the Landing arrived in Egypt was the subject of very contradictory reports both at the time and later. The reasons for the discrepancy are not far to seek. The extraordinarily patent endeavour in official reports to minimise the defects was largely the result of a crop of unofficial statements of an unusually violent and unreasoning nature. For these it must be acknowledged that

Condition of wounded

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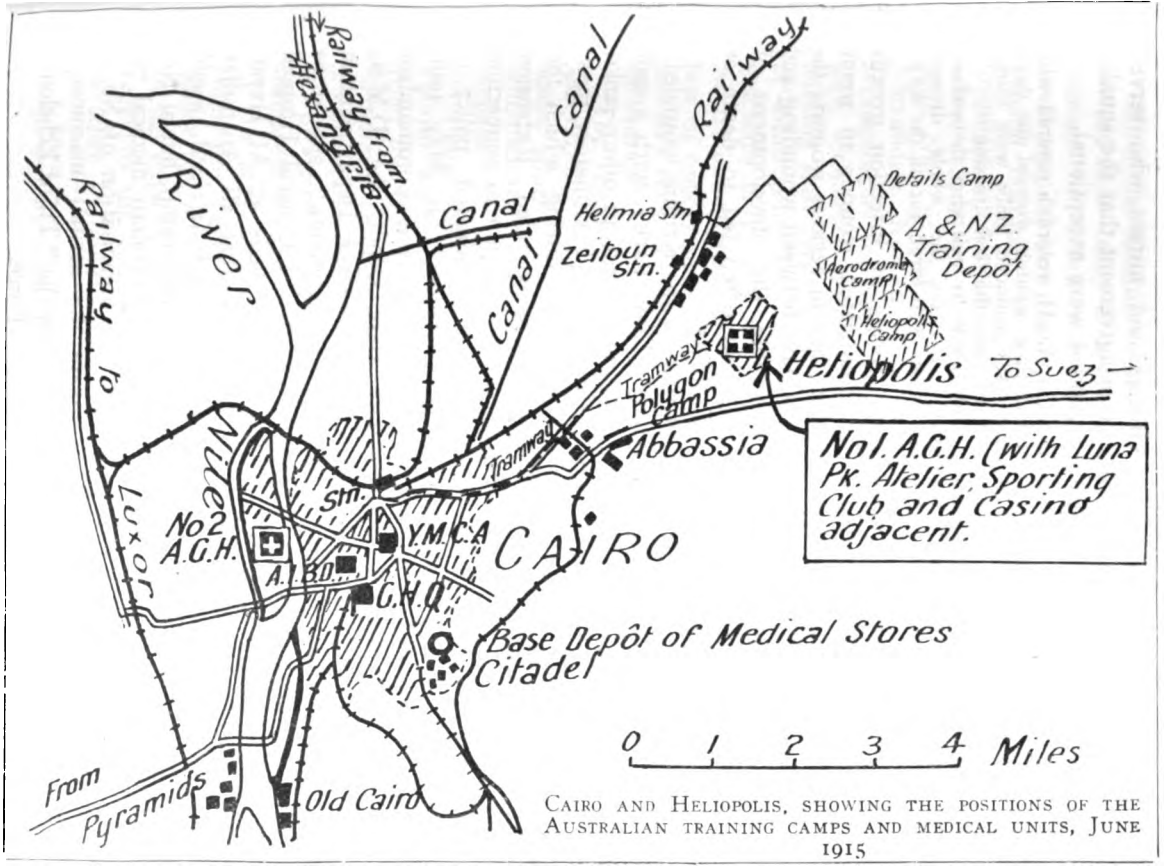

CAIRO AND HELIOPOLIS, SHOWING THE POSITIONS OF THE AUSTRALIAN TRAINING CAMPS AND MEDICAL UNITS, JUNE 1915

Map No. 6

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there was some excuse. Officers and nurses who served through the rest of the war are in agreement that the squalor and misery of the seriously wounded were exceptional.

> They came in (a surgeon of No. 1 A.G.H. records) covered with filth and muck. Many had not had their wounds dressed for days, and on undoing bandages in some cases wounded limbs were found gangrenous and had not been touched since the first dressing. . . . On the other hand the lightly wounded, able to look after themselves, arrived in very good condition . . . on the whole dressed excellently at the front and in most cases well cared for on the way.

The absence of more grave forms of infection greatly influenced the situation. Uncomplicated wounds in many instances healed by first intention, but in serious wounds the time factor—at least four to five days between wounding and effective treatment—made inevitable the development of severe sepsis and of conditions that often led to death or prolonged illness and severe disability.

Respite after Krithia—further expansion of No. 1 A.G.H.

On May 11th came the first rush of the Krithia wounded,[1] and by the 16th No. 1 Auxiliary (Luna Park), with a staff of 6 officers, 15 nurses, and 40 other ranks, was holding 1,620 cases. Fortunately there now occurred a respite during which the accommodation could be extended. Extension of second-class accommodation in connection with No. 1 General Hospital now dominated policy in regard to the Australian medical service. On May 10th, in response to an urgent cable from the Commandant of the Australian Intermediate Base Dépôt, the D.M.S., A.I.F., cabled from England to the Defence Department in Australia asking that "special reinforcements" should be duplicated for the "expansion" of No. 1 General Hospital up to 3,500 beds, in addition to 1,000 beds at Al Hayat. On May 17th instructions were issued that all Australian Medical reinforcements, for whatever unit destined, would be held, not, as normally, in the base details camp, but at No. 1 General Hospital. The dépôt for Australian medical reinforcements thus became part of the organisation of No. 1 General Hospital and lay outside the normal machinery, which provided for their distribution by the "Third Echelon" of the Mediterranean Expeditionary Force.

[1] The casualties from the 2nd Australian Brigade arrived at Alexandria on May 12 and 13.

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After the Krithia casualties had come to hand, wounded arrived in a steady flow at the average rate of 450 daily, all (except for a few sent direct to Malta[8] from Gallipoli by naval hospital ship) being taken by Egypt. The two British general hospitals, working at full pressure, and the local hospitals at Alexandria absorbed them all until the 22nd, when evacuation to Cairo recommenced. At the end of May Nos. 19 and 21 British General Hospitals arrived at Alexandria, No. 19 being intended for Lemnos. Pending arrangements for their disposal, their personnel was used to staff temporary hospital ships. On May 10th a British nursing staff arrived under Miss S. E. Oram, Q.A.I.M.N.S., as Matron-in-Chief for Egypt. Under this capable and gracious lady and the matrons of the British hospitals Australian nurses were given the most cordial welcome, the best of opportunities—and toils and experiences of which the memory remained intense and poignant even after three years of France.[9]

The respite to the Australian hospitals gave their clinical and nursing staffs opportunity for improving the conditions under which the wounded were treated; it also enabled the administrative departments of No. 1 General Hospital to prepare for further contingencies. In this respect the foresight, energy, and resource of the registrar of No. 1 (Major Barrett) were conspicuous. Obtaining permission from the D.M.S. for the Force in Egypt, he took over the "Atelier" (a joinery near the hospital), of which the large workroom was filled with palm beds as quickly as they could be procured. Helouan accommodation was subsequently increased for cases "likely to be well in 7 to 8 days."

On May 27th the troopship *Kyarra* brought from Australia the "special" reinforcements for sea-transport duty, which (as authorised by the D.M.S., A.I.F.) were absorbed in the expansion of No. 1 General Hospital, thus affording relief to the greatly overworked clinical and nursing staff. Another building ("Gordon House") was taken over to

[8] At Malta the arrival (*via* Egypt) of 1,530 wounded from the "Krithia" fighting brought the occupied beds to 1,556 "A" class, 1,400 "B" class, and 3,455 "C" class.

[9] "She (Miss Oram)," says an Australian nurse, "was the most impartial person I ever met. Nothing could have been more pleasant than the relations. The English girls . . . were told by the Matron: 'these Australians have come many thousands of miles from home; make them at home with you.'"

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accommodate nurses, while the medical staff, including that of the auxiliaries, resided at the "Palace." The staff of No. 1 General Hospital was now 35 officers, 140 nurses, and 310 orderlies; the patients numbered 2,005, the great majority being in Luna Park.[10]

Heliopolis "Palace," like other hotels, was ill-adapted for treating large numbers of cases, the numerous small rooms making control difficult. The large entrance hall, however, well served the policy of central admission with immediate distribution. All minor cases, and others when convalescent, were transferred to the auxiliaries (whence they were returned in case of relapse), and this system permitted treatment of large numbers. The conditions under which patients were treated in the auxiliary were, however, very rough, and at first comfortless. Even at the beginning of June "there were," a sister records, "absolutely no conveniences. The cookhouse consisted of from 5 to 10 large dixies with a fire under each. Beds were put in any place that could be found for them." The nature of the cases, however, permitted of self-help. Willing workers were soon found; in addition to Australian and British, "French, Belgian, Italian, and Egyptian women helped us with small dressings." In both hospitals a band of Australian women began work which continued throughout the Palestine Campaign and is memorable in the history of Australian voluntary service.

Voluntary help

In both Australian hospitals a much larger proportion of serious cases were received during May than at a later period. In No. 1 General, for example, with an average death rate for the year 0.75 per cent, 35 deaths (1.3 per cent) occurred in 2,650 cases admitted during that month. Treatment, as one of the operating surgeons put it, was "a matter of scavenging." While many cases did well, a considerable proportion became chronic. A medical officer, arriving in

[10] The rapid expansion of this auxiliary is shown by the following figures:—

		Officers.	Nurses.	O.R.	Patients.
May 2	Palace	26	85	188	714
	Luna Park	2	6	12	790
May 16	Palace	26	88	198	600
	Luna Park	4	13	40	1,620

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June on "a day with a temperature of 113 degrees in the shade," found the beds moved out to the galleries owing to the intense heat (mitigated by electric fans).

It was my first experience of an atmosphere permeated with the odour inseparable from septic wounds of long standing. The patients were those severely wounded at the landing at Gallipoli. They were wasted and pallid, and their wounds poured pus such as I had never seen in other than cases of tuberculous abscesses. Their appetites were poor, and their attitude apathetic; most were having saline baths and irrigations of various sorts. They mostly had a history of having arrived at the hospital very septic, and stated that their dressings had been infrequently, if ever, changed from their initial dressing on the (temporary) hospital ship up till their arrival in Cairo.

The light cases in the auxiliaries did very well—Luna Park was practically an open-air hospital—a fact which may be taken to offset the undoubted lack of comfort. The strain on the staff, medical, nursing, and orderly, of both hospitals during this first month was, without question, exceptionally severe.

By the beginning of June the heat in Egypt was becoming intense. Convalescent accommodation was therefore sought at Alexandria, where, though the wet and dry bulb thermometer readings differ little from those of Cairo, the effect of the heat is mitigated by the sea-breeze and sea-bathing was available. A site (the Ras-el-Tin schools) was inspected on June 5th by the registrar of No. 1 Australian General Hospital under instruction by the D.M.S. for the Force in Egypt, and, though a poor one—a two-storey quadrangle in a slum area—was accepted as being "the only building available and near the sea."[11] A medical officer was detailed by No. 1 General Hospital and preparations were begun; but it was not till July that the place could be made fit for cases.

Early June—requirements for convalescents

Up till the end of May 3,028 casualties from the Dardanelles (2,376 wounded) had been admitted to No. 1 Australian General Hospital, the great majority being passed on at once to auxiliaries and convalescent dépôts. At the beginning of June Mena House was closed, and the personnel of No. 2 Australian General—reduced, by transfers, to 13

[11] In Egypt, reliance on buildings to the exclusion of hutted or tented hospitals was extreme.

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officers, 53 nurses, and 59 orderlies—was concentrated in Ghezireh, which was gradually expanded to take up to 800 cases.

On June 7th, 9th, and 10th the troopships *Franconia*, *Ascanius*, and *Southland* brought to Egypt 3,731 British casualties from heavy fighting at Helles. The D.M.S., M.E.F., was informed that available accommodation in Egypt had been exceeded; evacuation from the front was suspended for all but severe cases, which were now sent direct to Malta. No less than 4,500 casualties, a large proportion British, went to Cairo during these four days, at least fifty per cent passing through to No. 1 Australian General Hospital and a large number going to No. 2. The resources of both hospitals were taxed to the utmost. The "Atelier" was opened up for 400 cases, and convalescents and semi-convalescents were hastily cleared to Helouan and the base details camp. Accommodation could be made only by passing cases rapidly through the auxiliaries to Helouan, which became congested. Thence, when transfer had not been direct, they were moved to the base details camp, which became filled with a heterogeneous assortment of invalids and of the partly recovered. This procedure brought to a head certain defects in the system of disposal by return to duty and by invaliding overseas—defects to which reference will be made in a later chapter. The immediate result of the rush was further "expansion" of No. 1 General Hospital. On June 10th the fine premises of the "Sporting Club" were taken over and preparations put in hand for accommodating 250 cases. This was, however, the last heavy demand on the base for wounded during the first part of the campaign, which now "marked time," with only an occasional pace forward, until August. This fact admitted of a precarious equilibrium between beds available at the base and the number of casualties arriving from the front.

Overflow into "base details"

It is evident that during this period the medical service in Egypt had been strained to its utmost. To the A.D.M.S., Alexandria, "the whole of May was like a nightmare. In my quarters at Ras-el-Tin I used to wake in the morning and see ships waiting to enter the harbour, and wonder where we could put all

Summary

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the people." Up to June 10th 20,120 casualties were disembarked in Egypt, 11,720 being retained at Alexandria, 7,980 treated in Cairo, and 420 at Port Said. All had been absorbed, but the standard of care and comfort was not such as would have been accepted under conditions less strenuous. Disposal was made possible by rapid distribution from the comparatively small number of first-class beds through auxiliary and convalescent dépôts, in which the conditions were at first very crude. The possibility of this rapid movement was largely due to the Australian and New Zealand motor ambulance transport, without which it is difficult to see how a serious breakdown could have been avoided. The drivers of these vehicles did admirable service. During rushes "each driver was at the wheel almost continuously in the first rush for seven days, snatching odd minutes for a hasty meal and having no regular sleep." The rapid expansion of No. 1 Australian General Hospital at a critical juncture undoubtedly saved an ugly situation. It was greatly helped, and in some degree made possible, by a free use of "Red Cross" funds and material. The whole episode, indeed, illustrates an important feature of the activities proper to the "Red Cross"—forestallment in a crisis of military action. It is clear, however, that reliance on voluntary aid in such contingencies acted detrimentally, in so far as it inhibited a proper appreciation of national and military responsibility toward the sick and wounded soldier. But for this provision, either the British or the Australian Government must have faced the question of making some more definite arrangement as to what base and L. of C. units Australia would supply. The fault did not lie wholly, or perhaps chiefly, with Australia; she had given willingly what was asked, and she assumed that the War Office intended—as it did—to supply the rest. There is no question that Australia would have done her utmost to supply the full quota of hospitals for her troops, regardless of expense, if she had been asked, or had believed it to be incumbent on her to do so.[12] Nevertheless it remains true

[12] The responsibility that would have fallen on the Australian medical service if the A.I.F. had been an expeditionary force will be understood from the following figures, based on the expectation of casualties as laid down in army manuals and on the existing sick rate in Egypt. In the A.I.F., out of a strength of 43,000, 22,000 took part in the actual Landing (3,800 less than three-fifths). The remaining

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that the question of cost at this period of the war entered largely into military considerations, and in connection with the medical service expenditure was apt to be niggardly. The cost to Australia of the provision of extra beds, etc., described in this chapter totalled little more than one thousand pounds; and, for this, special approval was necessary by the Minister for Defence! The *abandon* of later years had not yet been born of familiarity with the stupendous wastefulness of war.

The vigorous and well-directed action in the expansion of Australian hospitals, and the efforts on the part of Australian medical officers, nurses, and orderlies—which were hardly surpassed at any time during the war—helped materially in the crisis. Australian and New Zealand motor and horse transport did the whole transportation for British and Australian wounded alike; Australian nurses filled a gap in British hospitals; Australian Red Cross funds were available to British units.

At the same time, however, fifty per cent of all Australian wounded—and the great majority of the severely wounded—were treated in the British hospitals, whereas comparatively few British wounded were treated in Australian hospitals.

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two-fifths did not represent to any considerable extent administrative services, but were chiefly troops (the light horse and reinforcements) which soon after became engaged. Throughout the war the proportion of the A.I.F. which was subject to battle casualties was always larger than normal; this fact being reflected in the proportion of battle casualties, which was greater in the A.I.F. than in any other British forces engaged. For the 22,000 troops in the field a constant evacuation-rate of 0.3 per cent per day of sick and casual wounded would be "normal," and of these, under ordinary circumstances, some half would reach the lines of communication. Of the 43,000 A.I.F. at the end of April, some 16,000 remained in Egypt and 5,000 were in transports or at Lemnos. The sick rate of troops in Egypt at the time exceeded 0.3 per cent per day, with an average stay in hospital of eighteen days. With an adequate system of convalescence and invaliding, some 800 hospital beds would be constantly occupied by the Australian sick from Egypt, and 720 by Australian sick and wounded from the M.E.F., *i.e.*, a total of 1,580 constantly-occupied hospital and convalescent beds. For a severe battle, casualties up to 20 per cent would be expected, involving an additional demand, probably recurring, for some 3,000 wounded.

Thus about 4,500 beds would be required at once, without allowing for further operations or additional troops. Instead, there were two 520-bed hospitals, and the two stationary hospitals, normally of 200 beds each—*i.e.*, 1,440 beds. But Australia had not been asked to supply the full quota, and she had not offered to do so. The resort to improvised "expansion" to a quite exceptional extent was a necessary result of this shortage.

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CHAPTER XI

JUNE AND JULY: THE FRONT AND LINES OF COMMUNICATION

In the second phase of the campaign—during June and July—the evacuation of casualties was completely systematised as far as the Beach. As would be expected, it was on the maritime lines of communication that difficulties arose. To meet the military demand for a quick return to duty by slightly sick or wounded men a new scheme was introduced of retaining all these at Lemnos, but soon broke down chiefly through lack of foresight in developing the port of Mudros. In like manner clearance to the Base of severe cases fell short through inadequate provision of hospital ships and small craft. The War Office and Admiralty, stirred by earlier difficulties, provided a more co-ordinated control, and authorised the provision of a fleet of hospital ships, but by then the preparations for a second great offensive rendered another plan necessary.

* * *

Siege conditions

With the failure of the British offensive at Krithia and of the great Turkish counter-attack on May 19th at Anzac, the first phase of the campaign came to an end. Till the British offensive in August no attempt on a large scale was made by either side to break through. Nevertheless the interval—some three months—was one full of importance and anxiety from the medical point of view. At Anzac the tactical situation brought about a keen struggle for dominance, resulting in intense trench-warfare. Shelling was less severe than in France, and was chiefly confined to the throwing of shrapnel; but at no time in its history did the Australian Imperial Force see such tense trench-warfare as the mining, bombing, and sniping whereby in Monash Valley the Turkish dominance was reversed. Never did it occupy more elaborate trenches than those on the 400 Plateau. The right flank was transformed by sapping and hard trench-fighting. The casualties in these, and in the many raids and "demonstrations," were severe. The front was linked up

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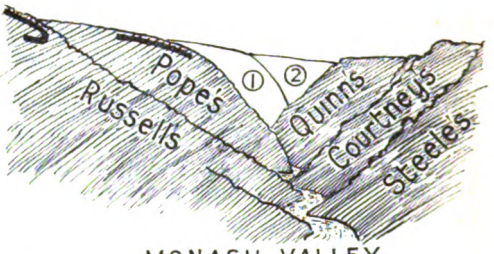
with the Beach by "saps" and roads. These labours, and heavy fatigue work on supplies, were carried out during a hot and rainless summer in a dusty and waterless area of half-a-square mile holding 25,000 troops, few parts of that area being free from rifle and shell fire. The force meanwhile suffered from an absence of relief and a precariousness of supplies commonly associated with a siege.



MONASH VALLEY

Anzac positions-shaded· Turkish·white·

1 Dead Man's Ridge 2 Bloody Angle

Such circumstances in themselves created medical problems of great complexity. In particular, the conditions were those which in the history of war have commonly been associated with serious outbreaks of disease. A rapid deterioration in health, which was to play an important—possibly a determining—part in the campaign was the outstanding medical feature of this period; in all arms throughout June and July the wastage from sickness was in excess of the replacements by reinforcements and recovered "casualties." The circumstances of this outbreak call for notice in a special chapter: the present describes only the general progress of the medical arrangements for the treatment and evacuation of sick and wounded, whereby the immediate requirements of the force were met and the foundations laid for the great effort of August.

Sickness

During these months there was but slight change in the disposition of military formations and units at Anzac already described, the chief development being that on May 21st the 2nd and 3rd Light Horse Field Ambulances landed and were placed, the 2nd on the right flank, where the bearers co-operated with those of the 1st Field Ambulance, and the 3rd on the left flank, clearing from the outposts and Walker's Ridge under the A.D.M.S., N.Z. & A. Division. The administrative isolation of Anzac from the rest of the

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Mediterranean Expeditionary Force still persisted. During the brief period of his administration at Anzac the A.D.M.S., Lines of Communication, exercised his authority chiefly in the roadstead. The position of "acting D.D.M.S.," A. & N.Z. Army Corps, held for a time after the Landing by Colonel Manders, was not confirmed, and, though questions were at times referred to that officer as senior A.D.M.S., in a general way the D.A. & Q.M.G. continued to act, on corps headquarters, as the responsible authority in "medical and sanitary matters"; the two divisions worked, for the most part, independently of each other and of the corps. No other instructions having been issued, the 1st Australian Casualty Clearing Station remained under the A.D.M.S., 1st Australian Division.[1] Developments in connection with the evacuation and treatment of sick and wounded were governed by the military circumstances described above: both matters, and also replenishment of medical supplies, continued to be subject to many of those difficulties of the Landing which have been enumerated.

Administrative isolation of Anzac

The regimental medical officers became 'increasingly engrossed in their sick parades and the preservation of health.[2] The collecting of wounded from and in front of the trenches became recognised as primarily the duty of the regimental bearers, from whom the ambulance bearers took over at the regimental aid-posts, which were commonly at a distance of not more than eighty or a hundred yards in rear of the front trench. The work was not heavy, but the casualties among both regimental and ambulance bearers were considerable, and the high standard of duty maintained was at times—as in raids or demonstrations—severely tested.[3]

Work of regimental personnel

[1] The administrative developments in sanitation are described in Chap. *xii.*

[2] At Anzac (as later in France) probably the most laborious regimental work was that of the medical officer attached to each artillery brigade. In the 3rd A.F.A. Brigade, for example, the regimental medical officer, with personnel reduced to a corporal and two privates, had ten camps, with some 700 men, scattered over the right flank in the most inaccessible positions. "To visit all these camps and spend time at each, inspecting, was more than could be done on one day, if there was any shelling." (Diary of R.M.O., 3rd A.F.A. Brigade.)

[3] In a daylight "demonstration" carried out on June 28 by two companies of a battalion on the right flank as a "holding operation" to assist a local offensive at Helles, Private G. E. Latimer of the 2nd Field Ambulance, before he was himself killed, carried to safety four wounded men from the open hillside with a gallantry which fully merited the highest reward. This "demonstration," (selected at random), cost almost 30 per cent of casualties.

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The most difficult problem lay in carrying the seriously wounded along the precipitous hillsides, especially those of Monash Valley and among the bends in the narrow traversed saps and trenches on the right.[4]

Field Ambulances

Clearance from the various sectors of the front was systematised by *liaison* between field ambulances and regimental establishments and by the development of a system of relays to the clearing station. No vehicles except mule-carts could be landed, and transport of wounded was by hand-carry and a few donkeys. An endeavour by the 4th Field Ambulance to utilise mule-carts "returning empty" after carrying supplies up Shrapnel Gully proved ineffective. From the outposts on the open left flank and from Russell's Top wounded were taken, *viâ* an advanced dressing station, to the New Zealand Field Ambulance embarkation-station at the cove.

Tent divisions

When at the Landing at Anzac, through the failure to advance, the field hospitals were eliminated, their tent divisions were left free to work in the transports and so "save the situation" on the lines of communication. Various circumstances, however, quickly led to their employment, though in a limited measure, on shore. The driving away of the transport fleet by submarines, and the shortage of hospital ships, made the retention of cases on the Peninsula sometimes inevitable. It was also soon found that if men were evacuated for slight causes, they were often long in returning—indeed almost lost sight of. The most cogent reason, however, was the startling increase in sick wastage that began after the end of May. During June and July there were formed at Anzac "rest stations," where from thirty to forty minor cases could be held in "pozzies" or "dugouts." Arrangements were also made for isolating on shore specially contagious diseases; for example, special provision—fortunately not required—was made for cholera, a "cholera-station" being

[4] It is recorded that under these circumstances the best means of transportation, when obtainable, was the short naval stretcher, which could be "up-ended." An ingenious chair, carried on the back, was devised and used with some success for the trenches, where, however, for the most part there was employed the convenient but cruel method of carrying wounded in a "ground sheet" or blanket.

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DIAGRAM ILLUSTRATING SUPPLY AND EVACUATION IN RELATION TO MILITARY FORMATIONS AND ADMINISTRATIVE AREAS: COMPARING "NORMAL" CONDITIONS WITH THOSE OF ANZAC

The figures in red relate to evacuation, figures in black to supply.

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formed by the 4th Field Ambulance in "Rest Gully." The 3rd Field Ambulance had "dug in" at the mouth of White's Valley, and received cases from the right centre.

During June (its diary records) the bearer division has cleared down Shrapnel Gully; "C" Section tent sub-division is still on the sweeper *Newmarket*; other "details" on ships. "Details" under two sergeants report daily for sanitary duty under the D.A.D.M.S. The men of "A" and "B" tent divisions carry on hospital for light cases. Number treated 365, average daily 36.3, duration 3 days. Discharged to duty 97, to C.C.S. 237. 6.4 per cent of unit daily sick, 14 evacuated sick, and 10 wounded.

Early in June the tent division of the 2nd Field Ambulance landed and held a few cases in dugouts in Victoria Gully. The 1st Field Ambulance tent division remained employed on the lines of communication.

The 4th Field Ambulance tent division was fully occupied in serving Monash Valley. Rest stations were operated by it in "Rest Gully" (one of the safest spots on Anzac), on the Beach, and in "Headquarters Gully"; in the last-named 1,702 cases were treated under distinctly risky conditions, thirty-nine patients and members of the medical personnel being killed or wounded. It is evident that the contention of the A.D.M.S., 1st Australian Division, that during this period Anzac was unsuitable for tent-division work, was on the whole justified. The two light horse field ambulances were, in fact, returned on June 26th to Mudros to save water. As will be related elsewhere, however, there grew up in the battalions on the 400 Plateau and right flank a system of treatment in the lines—the safest place; and at a later time this method of preventing wastage was much exploited.

The great majority of cases were evacuated direct to the Beach. Here a remarkable situation had developed.

Clearing Stations

The administrative headquarters of the corps and of the two divisions were established in Headquarters Gully. The cove itself was the centre of activity of all the services of maintenance—practically corresponding to a railhead in ordinary land warfare. On its narrow Beach were landed at night the supplies and reinforcements for 25,000 troops, and here also were assembled for clearance all the casualties in men and material. By all military principles Anzac Cove, like Monash Valley, was "untenable": but, also like the latter, it still was held,

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though this was made possible only by the fact that the weather remained fine and that the shelling was not concentrated and ceased at night, when the whole sea-front was a crowded throng of men and mules. Even as it was, the cove was among the most dangerous places on Anzac, and the casualty rate among those working there was heavy.

Three medical units worked on the Beach, crowding in for safety close to the low cliff and under the protection of the huge dumps of stores. The 1st Australian Casualty Clearing Station, at its original site, worked in conjunction with "A" tent sub-division of the 4th Field Ambulance, both units receiving during the day, but the two agreeing to alternate at night. The New Zealand Field Ambulance also carried on in the safe station taken over from the Royal Marine Field Ambulance. On May 30th the detached personnel of the clearing station rejoined, bringing the bulk of its equipment, which was "badly needed." On this unit fell most of the work on the Beach, where the chief duty was still that of clearance to the roadstead, though at times considerable numbers accumulated and had to be disposed of temporarily on shore in terraced ledges in the cliff or such other shelter as could be found. The position occupied by the clearing station was very dangerous, and, in spite of sand-bagging and a shelter for walking cases, the work was done at great risk. No attempt could be made to protect the medical units on the Beach by Red Cross flag. On June 16th, for example, an officer of the clearing station notes in his diary, as the culmination of a series of "perfectly hideous days"—

> After dinner they began to shell us again from both sides—a furore of bursting shells pitched over and around the hospital . . . one burst over our living room and riddled a chair with shrapnel. In all about 100 shells were fired, mostly landing within 50 yards of the hospital. If they had been high explosives, we should have been wiped out.

A considerable number of casualties occurred among patients and staff; but it was not till June that a better site was obtained for the clearing station through the transference of the New Zealand Field Ambulance to an advanced dressing station on Walker's Ridge. The advantageous position held on the Beach by this unit was improved by the engineers, who dug

C.C.S. moves to better site

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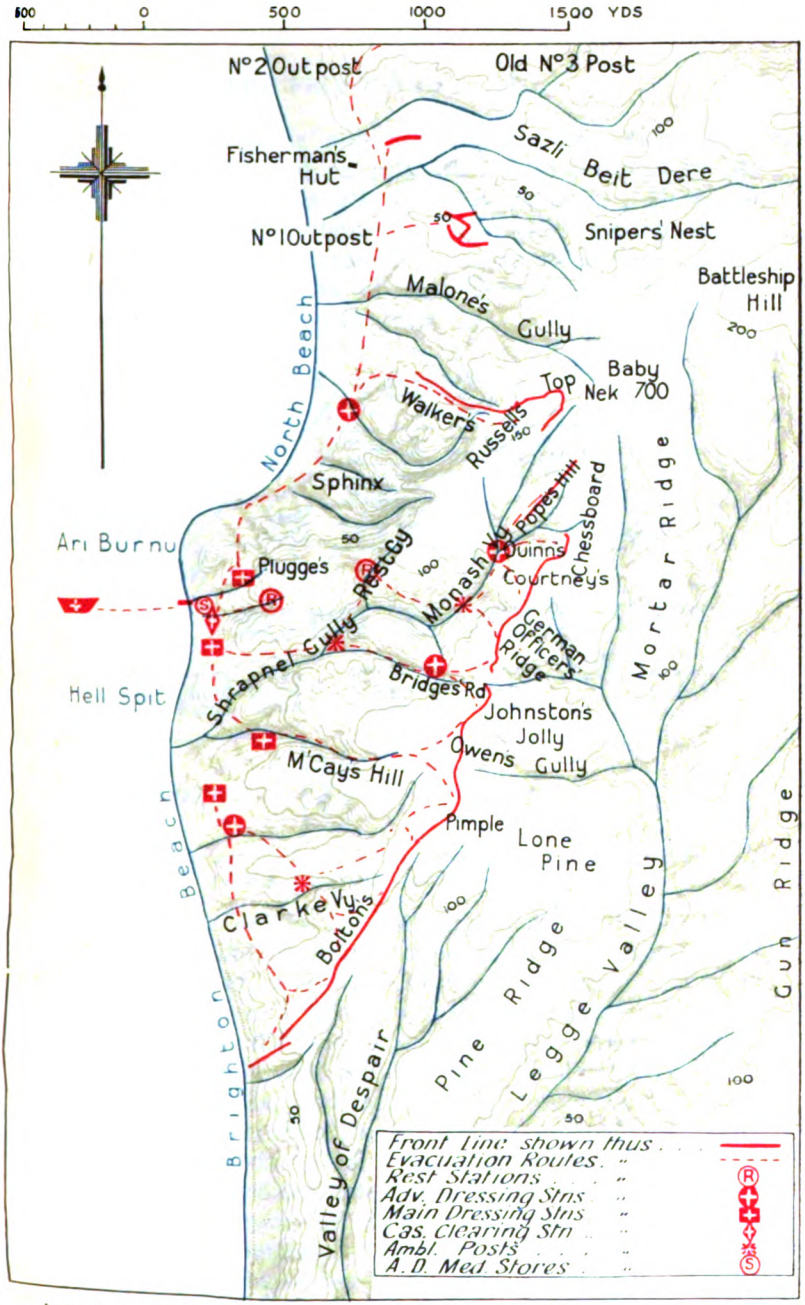

ANZAC AT THE END OF JULY, 1915, SHOWING ROUTES OF EVACUATION FROM THE FRONT LINE TO THE ROADSTEAD

Height contours, 10 metres.

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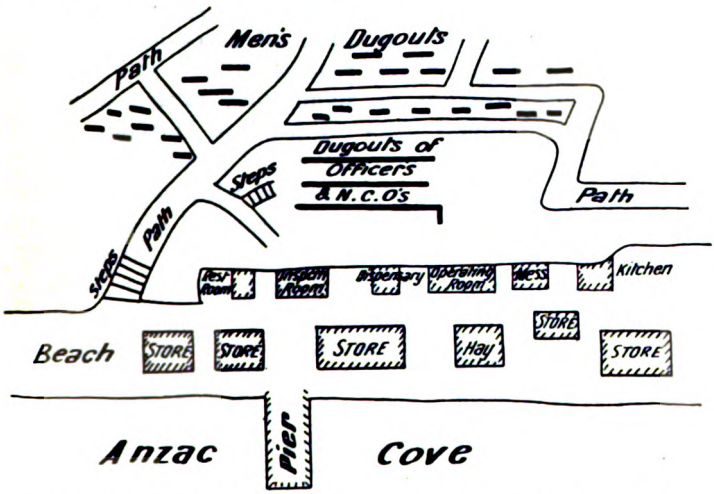
terraces in the hillside and built a new pier (known as "Watson's Pier"); and on July 4th it was occupied by the clearing station and the 4th Field Ambulance. Here the work became more systematic; "gradually getting things ship-shape and the unit tuned up, after their long 'go as you please,'" is the note of an officer of 1st Australian Casualty Clearing Station in July.



Plan of site of 1st A.C.C.S. from 4th July to 18th October, 1915. (From Diary of Colonel W. W. Giblin.)

The presence of the hospital ship a mile off the shore, offering, as it did, excellent opportunity for prompt and effective treatment, made the detention of severe cases in most circumstances a grave injustice. Though this was acutely realised by the medical officers, there were times when such cases had to be held and treated. Trephinings, amputations, and occasionally "abdominals" were performed, and fractures were splinted from the field fracture box. The "Thomas" thigh-splint was not available, and an officer notes in his diary: "dressing these compound fractures of the thigh is a hopeless procedure, and they must be amputated." Anti-tetanic serum was at first given in very few cases, but on June 4th the D.M.S., M.E.F., ordered that it should be used "for all cases of soiled

Urgent surgery

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wounds": on July 7th it became obligatory for all wounds. No. 4 Advanced Dépôt of Medical Stores was established on the Beach during June: hitherto units had drawn on the clearing station.

The Naval task—in roadstead

During this time a regular system of disposal from the Beach had developed, controlled until June by the A.D.M.S., Lines of Communication. Before the arrival of the submarines the custom in evacuation had been to send all cases at any hour to ships in the roadstead. It will be remembered that the presence of submarines caused a move of the temporary hospital ships to Mudros Harbour, and the establishment of a local ferry service of "sweepers." Thereafter, though clearance to hospital ship, when one was present, could still take place at any hour when naval small craft were available, the sweeper discharged her military freight only at night, and clearance of cases to her could not begin till the early hours of the morning. With the great increase of sick in June it became necessary to issue precise instructions so as to avoid congesting the Beach and the hospital ship. As summarised by the A.D.M.S. of the 1st Australian Division these were:—

> Severely wounded and medical cases requiring immediate hospital treatment are sent to hospital ship at all hours, and remain there. All other cases are sent to Mudros by the fleet-sweeper which leaves Anzac at 10.30 a.m. daily. Cases for Mudros should be at the C.C.S. by 9 a.m., otherwise will probably be returned to their unit. If a Mudros case cannot be at the C.C.S. by 9 a.m., he must be kept within his unit or at the field ambulance till next day.

For the difficult and heavy work of clearing from the Beach station to the piers the casualty clearing station was made responsible; there and in the boats responsibility was taken over by naval ratings. Embarkation was controlled by the naval "landing officers."[5] On June 9th a slight swell held up evacuation for a short time. On June 29th a thunderstorm, followed during two days by wind from the sea, showed how precarious was the position, the pier being wrecked and many boats beached, including the "medical" pinnace and a lighter; the latter, with sixty wounded on

[5] One of whom, Lieut.-Commander E. H. Cater, R.N., achieved a distinguished reputation for disregard of danger in the service of the wounded, and was killed in the course of those duties.

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board, broke adrift from the pier and went ashore near "Hell Spit," fortunately without serious mishap to the cases.

Transportation to hospital ship or sweeper continued to be unsatisfactory: "still (at the beginning of June) in a chaotic condition, no better than the day we landed." In June one horse-boat and a pinnace were floored over so as to receive stretchers, and were then fitted with awnings and marked with a Red Cross: the enemy, it should be recorded, was punctilious in permitting the transfer of wounded when the nature of the proceeding was obvious. In July it was still agreed, both at Anzac and Helles, that, except for a better service of hospital ships, evacuation from the beach had improved little, if at all. Urgent request for motor craft to be used exclusively for this purpose was made to Surgeon-General Babtie, the newly appointed "Principal Director of Medical Services," who visited Anzac at the end of June, but, though he was sympathetic, nothing resulted. While the fact must be recognised that the navy was hard-pressed for small craft, and that sick and wounded were a secondary concern, other influences are evident. In the navy (to whom the roadstead belonged) the evacuation of sick and wounded was before the Great War organised on very simple lines; special transport had little place, and the consideration that the conditions associated with "combined operations" might be indefinitely prolonged had none at all. At the same time, in the pre-war British Army that link in the chain of evacuation on land which corresponded broadly to the roadstead at Gallipoli—namely, the link between "army" and "line-of-communication" medical units—was not provided with special transport, reliance being placed on "returning empty" supply waggons or improvised vehicles.[6] Consequently the representations of medical officers on Gallipoli were not reinforced by analogy of army organisation, and were only half-heartedly backed by the higher medical administration of the M.E.F.

Shortage of small craft persists

The D.M.S., M.E.F., was faced at every stage of evacuation with the difficulty that, even for "normal" clearance,

[6] The motor ambulance convoy was created early in the war to fill this gap.

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except for two hospital ships he had for some time to rely on non-medical, and therefore uncertain and unreliable, means of transport. It must be acknowledged, however, that the evidence of any self-help in this respect is not striking.

Lines of Communication

On the lines of communication to the expeditionary base the problem of evacuation in the Gallipoli campaign was, even more manifestly than usual, a double one, involving the disposal of light and serious cases respectively. In the question of light cases there was concerned the military matter of "return to duty," and here the problem was taken in hand at once: the question of the seriously wounded, being more difficult and militarily less important, was longer in being faced.

The military advantage of sending light cases to some place near at hand from which men would quickly return when they became fit, was daily impressing itself upon the Anzac command. Accordingly on May 21st the D.A. & Q.M.G., A. & N.Z. Army Corps, accompanied unofficially by officers of the 1st Field Ambulance, inspected Imbros with a view to establishing a convalescent dépôt, and a very suitable site was found. On the same day he represented the medical interests of Anzac at a conference of the administrative staff of M.E.F. Imbros was, however, rejected by G.H.Q., as it was decided to centralise treatment at Mudros for "light sick and wounded and infectious cases" from both Helles and Anzac. This was to be effected by means of the "sweeper service," working in conjunction with the hospital ships. The latter, when present, would lie off the beaches, take in severe cases, and, "when full," sail for the base. As the available hospital ships would be insufficient to accommodate all serious cases, a ferry service of black ships, plying between Lemnos and the expeditionary base, would assist. Assistant-directors of medical services were instructed by the D.M.S., M.E.F., to treat in field ambulances on the Peninsula all "light cases likely to be well in 7 days"; "21 day cases" were to be treated at Mudros; "serious cases" to go to Alexandria.

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Pending the effective establishment of the sweeper service, evacuation from the Beach was for a time profoundly disorganised. The temporary hospital ships did ferry work between the Peninsula and Lemnos; at times, in the absence of the hospital ship, they remained, though at serious risk, off the beaches. The master of the troopship *Dunluce Castle* painted a red cross on her black sides, but she narrowly escaped being torpedoed behind the incomplete boom at Kephalos (Imbros). The *Neuralia* lay off Helles as a black ship, but flying a Red Cross flag. The transport *Galeka* on return from her first trip, without being able to replenish stores, but crowded with Australian medical personnel, began on May 17th to receive wounded of all degrees of severity, and moved between Anzac, Imbros, and Mudros, obtaining supplies with great difficulty; it was not till May 28th that, after a vigorous protest by the "S.M.O." at delay, she reached Egypt with 478 cases. The circumstances of the voyage were unsatisfactory.

New scheme begins

On May 25th H.M.S. *Triumph*, and on the 27th H.M.S. *Majestic* were torpedoed (survivors being nursed by the Australian Army Nursing Service sisters in the *Neuralia*); and on the 30th orders were issued by G.H.Q., M.E.F., that only "regular hospital ships" were to lie off the beaches, and that in their absence both seriously and lightly wounded were to be conveyed by sweepers to Mudros.

This short ferry service of "sweepers" was a novel and interesting development. It corresponded to the service which in land warfare would have been rendered either by motor-ambulance convoy or by "Army" transport, and was an important link in the chain of connected activities whereby casualties were passed back for repair and disposal, and reinforcements and the recovered were brought up to make good the constant wastage. The vessels so employed were of a size from 500 to 1,000 tons; they were taken from those used by the navy in mine-sweeping, and were handy, and difficult to torpedo.[1] At Gallipoli mine-sweepers were

The Sweeper Service

[1] Eight railway steam packets were commissioned by the Admiralty as "fleet mine-sweepers." Five at least of these were used for medical purposes at Gallipoli. The organisation of the British Navy includes provision for taking

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improvised from two types of vessel—packet boats, which were well fitted for evacuation, and North Sea trawlers, which were not. No special medical vessels were allotted, but the ships employed were partly fitted for medical purposes and were equipped by direction of army headquarters, medical personnel being found by both navy and army. For normal evacuation the service was very satisfactory. It was only during the heavier rushes that it was necessary to use trawlers which were unprepared and hastily staffed, and on which the seriously wounded suffered greatly.

For Anzac a team of two medical officers, one sergeant, and five men (one a cook), equipped with palliasses, blankets, and medical stores, was detailed by No. 1 Australian Stationary Hospital to the fleet sweeper *Clacton* (820 tons). This team was increased later to fifteen, with a sergeant clerk for keeping records. The *Newmarket* (833 tons), *Hythe* (509), and others were also from time to time staffed from Australian field ambulances, and during May, June, and July worked from Anzac and Helles. For others, British clearing station personnel was used. In the *Clacton* the holds were cleared, lights put in, a sloping companion-way built, and special arrangements made for cooking. Her first trip was made on May 21st, and thereafter her journeys were regularly made once in every twenty-four hours, supplies and troops being brought up at night and

after discharging, barges in charge of a "middy" would range alongside: the stretchers were taken in by hand—very awkward at night or if the sea were rough. Light cases were taken from the hospital ship. First instructions were for 150 lightly wounded, but soon all classes of case were sent and frequently over 300 carried.

The hospital ship lying in the roadstead and the nightly sweeper were important links with the outside world, and were a feature of life at Anzac. As the murrain of sickness increased in the troops, the work performed in the sweepers in the way of treatment and classification of cases for distribution became very heavy. The success of the service depended greatly on the ship's company, usually North Sea fishermen. "Nothing" (says an Australian medical officer,

over, in case of war, a sufficiency of such vessels—commonly "drifters" or "trawlers" of from 200 to 300 tons burden—together with their crews. Besides general duties in connection with the fleet, they are used to serve in the evacuation of wounded between battleships and hospital ships or carriers.

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of the *Clacton*) "that I could write could express my sense of gratitude for the courtesy and kindness of the officers and crew."

As with the "black ships," administration of this service was divided between the navy and the "Q" branch and medical department of the army, the latter being represented by the D.D.M.S. Lines of Communication. Co-ordination of responsibility was far from exact, and distribution of cases was often haphazard. Similar confusion existed in respect of equipment; for example, the *Clacton* was at first ordered by the D.D.M.S., Lines of Communication, to replenish medical stores from "the Beach at Anzac"—where, as yet, no dépôt of medical stores existed and where units could replenish only by stores brought from Lemnos by the sweeper itself.

Lemnos Advanced Base—hospitals afloat and ashore

The accommodation required at Mudros by the new scheme was provided partly afloat, partly ashore. On May 24th the "dépôt ship" *Alaunia* left Mudros for Egypt with 479 cases, and was replaced by the 18,000-ton *Franconia* (called "floating hospital"), on which were now No. 2 Australian and Nos. 15 and 16 British Stationary Hospitals. The necessity for re-establishing hospitals ashore was also now recognised. No. 1 Australian Stationary Hospital, which landed on May 19th to re-erect on the old site at East Mudros the hospital previously dismantled with such reluctance, found scarcely better facilities than before, but the unit was greatly helped by the loan of French mule-carts for the transport of equipment and carting of water and stores. On the 21st, "before half the tents were up," and without warning, 271 cases arrived, including scarlet fever and measles. Thereafter admissions kept pace with the opening up of tents, till there were 400 beds, and a splendid hospital was again built up, though worked by a staff designed for only 200. Owing to the shortage of water and to the absence of a constructive policy with regard to Lemnos, No. 19 British General Hospital, which on May 24th arrived from England *viâ* Alexandria to open there, was sent back to Egypt as "useless at Mudros."

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As the advanced base, Mudros would be the head of the Lines of Communication of the M.E.F., but no lines of communication headquarters at first existed. By May 12th Mudros Harbour had been made the naval administrative base; the headquarters of the Principal Naval Transport Officer—who, under the Admiralty direct, controlled all the chartered vessels—being established in the transport *Aragon*, permanently anchored.[8] By irregular accretions an assorted military staff accumulated round this naval nucleus. All vessels, coming and going, were directed by G.H.Q., M.E.F., to call at Mudros, and on May 24th the D.D.M.S., Lines of Communication (Colonel Maher), was transferred there from Helles and the A.D.M.S. (Colonel Thom) from Anzac. The duties of the D.D.M.S., Lines of Communication, were important. He was responsible for the working of the temporary hospital ships and the sweepers, and, in conjunction with the Deputy-Adjutant-General and the D.Q.M.G., M.E.F., also for the return of recovered cases to the front, for sending up medical supplies and reinforcements to the Peninsula, and for the general medical administration of Lemnos as an advanced base. At the end of May General Headquarters of the Mediterranean Expeditionary Force established itself at Imbros, and with it there were naturally located the heads of the great administrative departments, including the Director of Medical Services. It was not till June 7th that an "Inspector-General of Communications" was appointed and established with his staff in the *Aragon* at Lemnos. Though a member of this staff, the D.D.M.S., Lines of Communication, was also under the orders of the D.M.S., M.E.F., and between the navy, the M.E.F. command, the inspector-general's command, and those in Egypt and Malta, the medical situation was very involved, and its operations in consequence confused.

L. of C. Headquarters forms there

At the end of May a dépôt camp for surplus medical personnel was formed at East Mudros, and on the 27th it included ten officers and 105 men of the Australian Army Medical Corps, who were thence drawn upon for transport

[8] Admiral Wemyss, who administered the island from the political standpoint, was also stationed in the *Aragon*.

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duty. The supply ships of all kinds—ordnance, army service corps, engineering—lay scattered in the harbour. Nos. 4 and 5 Advanced Dépôts of Medical Stores were assembled on the dépôt ship *Alaunia,* the Base Dépôt of Medical Stores being still retained in Egypt.

The working of the "ferry service" of hospital ships and black ships to the expeditionary bases must now be followed.

Larger ferries to base

In consequence of General Maxwell's letter[9] of May 8th hospital ships had been reduced to two (*Sicilia* and *Gascon*) and the systematic use of black ships had been accepted by G.H.Q., M.E.F., though under protest from Surgeon-General Birrell. The conditions in these vessels have been described. It had been promised that five transports should be reserved for medical use, and a board in Egypt inspected various ships. Action taken in connection with these had interesting developments. When the hospital ship *Guildford Castle* was taken off, the nursing staff (A.A.N.S.) was, by order of the D.M.S. for the Force in Egypt, "sent to join H.M.T. *Neuralia,* a finer vessel but not fitted out for hospital work. A number of bunks were hastily put in, and with Red Cross flag we went to Lemnos."[10] Other vessels were selected, and fitting commenced. On May 24th the D.M.S., M.E.F., instructed the A.D.M.S., M.E.F. Base, to use his nurses for this ("black") transport service; at the same time, however, repeating, in a cable to the War Office, his plaint: "I am still of the opinion that four hospital ships are required."

The scheme[11] devised by G.H.Q., M.E.F., to meet the new conditions in connection with the evacuation and disposal of

New Scheme breaks down

casualties, slight and severe, had hardly been established before its inadequacy became evident. For slight cases, treatment on shore at Gallipoli was found unsatisfactory. On May 27th the A.D.M.S., 1st Australian Division, pointed out to the A.D.M.S., Lines of Communication, its "impossibility owing to the fact that no tent sub-division was on shore, nor place where it could be put on Anzac, the C.C.S. acting as

[9] *See p. 177.*
[10] From the diary of an Australian nursing sister.
[11] *See p. 214.*

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dressing station and clearing station."[12] Even at Helles, large numbers could not be held. At Mudros the cases included in the "seven to twenty-one days" period exceeded the accommodation. Though the number of wounded decreased, there had begun the flood of sick, which was destined again to confound the calculations of G.H.Q., M.E.F.

Requests for return to duty

Meanwhile from the formations, particularly at Anzac, there had come a complaint that men evacuated for slight causes had failed to return to duty. By the middle of May such complaints had been numerous; in June they became insistent and were taken up by the A. & N.Z. Army Corps with G.H.Q., M.E.F.; thence they travelled to the Inspector-General of Communications and Egypt. Nevertheless the matter remained for months a subject of unsatisfactory and even bitter debate. At the base the chief avoidable cause of delay is to be found in certain defects of the base dépôt, the nature of which will appear later; but at the front also there was failure to meet the requirements by developing Lemnos as an intermediate base for holding light cases within the sphere of operations. In connection, however, with this problem of return to duty, it is necessary to note that, while defects undoubtedly existed, there was at the same time a certain impatience on the part of units at the front with regard to the return of individuals—an attitude born of inexperience of the working of the army as a machine, and of the fact that the personal and direct methods to which they had become accustomed in Egypt were no longer possible.

Scheme altered—all hospitals ashore

To relieve the pressure on hospitals at Lemnos, the time limit for treatment at the advanced base was now reduced to fourteen days. The "dépôt ship" system for sick and wounded, which had proved far from satisfactory, was dropped, and during the first week in June the three stationary hospitals in the *Franconia* were established ashore at Mudros beside No. 1 Australian, together with an Indian field ambulance. Neither convalescent nor reinforcement dépôts were, however, established till later. The transfer of cases both in the harbour and to the shore was tedious and

[12] From the war diary of the A.D.M.S., 1st Aust. Division.

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irregular owing to shortage of small craft and of port facilities: the obtaining of medical supplies from the scattered store-ships was difficult and uncertain. In short, the organisation of the Mediterranean Expeditionary Force for service of supply and maintenance was in June below the requirements.

Lemnos had by July become in its purpose an intermediate base for the expedition rather than "advanced"; but this development had been brought about by force of events rather than by deliberate prescience; even the history of the next two months gives little evidence of any resolute pursuance of a clear policy in this respect. The delay, for example, in grappling with the problem of water (on which an urgent report had been made by No. 2 Australian Stationary Hospital on landing), and in commencing engineering work on shore, is difficult to understand in view not only of the immediate requirements for the maintenance of the force, but of the huge military effort now being planned. That delay was particularly prejudicial to the medical service throughout this period. There was manifestly an undue preponderance in the Mediterranean Expeditionary Force of the "operations" branch as against the administrative services, and very secondary importance was, (it would seem), assigned by the general staff to problems of maintenance.

Though by the steps taken the numbers evacuated to the base increased, the pressure at Lemnos was only partly relieved. At the same time, moreover, it was reported from Egypt that the accommodation at the bases was becoming overcrowded—"almost at breaking point, owing to the number of slightly sick and wounded cases."

Serious cases—twelve hospital ships demanded

While military interests in regard to the rapid return of slight cases to duty were thus being inadequately served, the treatment and disposal of serious cases were even more unsatisfactory. Things were brought to a climax in this respect by operations at Helles on June 6th, when no hospital ship was available to transport to the expeditionary bases nearly 2,000 wounded, who were evacuated in the transports *Franconia* and *Ascanius* (the latter staffed by the tent subdivision of the 1st Australian

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Field Ambulance). As a result of this experience and of criticism of the use of unprotected ships, and particularly in view of the news that five new British divisions were to arrive, the D.M.S., M.E.F., on June 9th obtained Sir Ian Hamilton's approval for a policy of providing twelve hospital ships—fifteen were first asked for—between the Dardanelles and Egypt.[13] Accordingly six vessels were partly equipped at once, and, with the permission of the D.M.S. for the force in Egypt, were temporarily staffed from No. 21 British General Hospital, which had just arrived there; 4 medical officers, 8 nurses, and 20 privates were allotted for each. But these vessels were sent out as black ships, unprotected and also liable to be taken off for combatant use. A number were, in fact, sent with cases direct to England, where they were to be available for bringing out the new divisions.

The question of providing more special hospital ships thus became acute. A hospital ship is such in virtue, first, of being painted white with a red cross, and of being, for protection, notified as such to the enemy; and secondly, in virtue of its equipment with suitable fittings and medical staff adequate for full hospital treatment of sick and wounded. The first requirement was subject to strict regulation under the terms of The Hague adaptation of the Geneva Convention. As regards the second, the fitting up of a vessel to act as a "hospital afloat" was a long and costly business, involving at least six weeks' work in England, or much longer in Egypt. In the navy, however, there was a recognised provision for meeting urgent requirements by using an "inferior sort of hospital ship" known technically as "hospital carrier." For this purpose merchant vessels would be fitted as well as time would permit, painted as hospital ships, and registered under the Geneva Convention. These were improved from time to time, and ultimately either fully fitted or returned to the merchant service. The Dardanelles problem was now dealt with on these lines. The transport *Neuralia,* before her next trip, was painted white and improved, becoming the first

"Hospital carriers" provided

[13] "Temporary hospital ships not considered safe" (diary of D.M.S., M.E.F., June 9). *See Appendix No. 3.*

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hospital carrier.[14] Gradually more vessels were selected in Egypt by a committee representing the Admiralty, the M.E.F., and Egypt, and were partly fitted by the department of the Admiralty in Egypt, and staffed from a reserve of medical officers, nursing sisters, and orderlies, British and Australian. Field equipment and stores—medical, ordnance, army service corps, and Red Cross—were put on board by the A.D.M.S. of the M.E.F. Base. They were often used in the first place as Black Ships, being painted as hospital ships later, as opportunity presented.

At this stage there were made, in two directions, changes of great importance, the result of an effort by the authorities in Great Britain to grapple with the medical difficulties of the campaign. First, the system of control was modified. During May, in addition to the effect of popular clamour, grave anxiety had been caused to the Admiralty and the War Office by reports received concerning the wounded. It was not at first recognised that the fundamental defect had been the shortage of hospital ships and of medical small-craft for serious cases, and a solution of the problem was sought in new administrative appointments. To co-ordinate the interests of Egypt and the M.E.F., and generally to direct medical activities in the Levant on broader lines, the War Office created a new position, that of "Principal Director of Medical Services" ("P.D.M.S.") for the East. To this post Surgeon-General Babtie was appointed. On its part, the Admiralty held that the trouble on sea was due to lack of co-ordination between navy and army, and the War Office agreed (though doubtfully) to the creation by the navy of a "Principal Hospital Transport Officer" ("P.H.T.O.") to control the movements of wounded on the lines of communication. To this office Sir James Porter (who had been Medical Director-General, R.N.) was appointed. General Babtie arrived in the East on June 15th, Sir James Porter not till the end of July. The P.D.M.S. was without local executive authority, no corresponding military command having been created. With the authority of the War Office

Two important measures— (1) P.D.M.S. and P.H.T.O. appointed

[14] This term was not at first taken into general use; all vessels, black or white, which were set aside permanently for evacuating sick and wounded, were, in a very confused way, called "hospital ships."

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behind him, however, he exercised considerable influence on local arrangements as well as on general policy, and controlled the disposal of the consultants, medical and surgical, and of the "experts" who were now being selected and sent to the East to meet the special circumstances of the campaign.

(2) Twenty-seven hospital ships promised

Second, in the middle of June it was decided in England to organise the whole system of hospital ships for the Mediterranean jointly between the Admiralty and the War Office. Local efforts at the seat of war were linked up with action in England in a scheme intended as a radical solution of the medical sea-transport problem. The provision of twenty-seven hospital ships (to include naval) was approved, the distribution being—local 12, to England 9 (5 direct from Lemnos), to India 3, to Australia 2, to New Zealand 1. The Australian Government (on June 2nd) agreed to find its two; the New Zealand hospital ship *Maheno* was already on her way to England.

Scheme develops slowly

Locally, this larger policy had good results and was opportune to meet the flood of sickness in the Dardanelles. It helped somewhat to "clear the decks" for the impending operations. But its development was slow. Departure to a time-table, as desired by the P.D.M.S., was impossible without a reserve of vessels which never materialised. Some selected ships were found wholly unsuitable, and were afterwards condemned. On one of the two occasions before the August offensive when heavy casualties occurred—namely, in the fighting at Helles and Anzac at the end of June—the old error was repeated of over-estimating the capacity of vessels and under-estimating the difficulties of classification. Some 1,800 wounded, brought to Mudros by sweepers and trawlers, were put in the unprepared troopship *Saturnia*, and for some hours suffered through neglect: or they were crowded into the filthy transport *Seang Bee*. The tent sub-division of the 1st Field Ambulance which was staffing the latter ship protested at the numbers sent, but, on being ordered to fill the ship or else get off it, they made the trip—their last—with 364 cases. Heavier casualties from Helles on July 8th were, however, dealt with without any serious hitch.

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The "home" part of the new policy matured even more slowly than the local. The whole scheme was, indeed, quite incomplete when it became merged into the vast events of August (for which by July 13th the tactical plan was being prepared) and of its aftermath in September. Then, partly through the sheer magnitude and complexity of the problem of sea-transport, but in great measure also through delay in putting into effect the policy for local development—namely, that of an intermediate base and systematic clearance of the expeditionary bases—new and drastic action became necessary.

It remains briefly to narrate the developments that occurred during June and July on the island which formed so crucial a centre on the lines of communication and of all the schemes concerning them. The two Australian stationary hospitals at Lemnos had played an important part in the work of the base that was gradually formed ashore. No. 1 had somewhat the better opportunities, and by July 31st had admitted 3,951 cases; No. 2 had admitted 2,396. Inspecting No. 1 on June 26th, the P.D.M.S. noted with commendation:—

Occurrences at Lemnos

> the operating room in Australian pattern hut: electric light from their own plant. X-ray apparatus working for all hospitals near: small bacteriological laboratory. They have an autoclave for the dressings. They join three double-fly marquees and make a ward for 36 men.

Even nurses from the *Neuralia* approved the "general tidiness of the tents and the well-cared-for appearance of the patients." During June thirty-six X-Ray plates and 310 screenings were made, No. 1 being till August the only unit with apparatus. Dental work was performed by a qualified dentist "so long as supplies lasted." A boat was bought locally for obtaining stores, and with the help of Rear-Admiral Wemyss—a good friend of the hospitals—a petrol engine was installed. This example of self-help might well have been followed in higher quarters. Both units were seriously crippled by reduction of staff through sickness and by the non-arrival of their reinforcements, which were retained in Egypt.

Toward the end of June British casualty clearing stations formed two "rest" hospitals at Mudros, where also the 3rd Light Horse Field Ambulance was established and by July

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accommodated 200 cases. In June, moreover, a base dépôt of medical stores was brought up, and the British Red Cross Society established a dépôt which supplied Australian as well as British units at Lemnos. The Australian Branch of the British Red Cross Society had as yet no personnel of its own outside Australia, and was at this time part of the organisation of No. 1 General Hospital in Egypt: supplies from this source were therefore necessarily casual and irregular.

A complication—rival policies

At this stage there occurred a further complication affecting the scheme of the D.M.S., M.E.F. The newly appointed P.D.M.S favoured the use of Lemnos for a very different purpose than that of merely catching the light cases on their way to the base. He urged the development of the island for the treatment of serious cases near the front, and, in pursuance of this policy, at his request G.H.Q. asked the War Office on June 30th for a "hutted hospital" of 1,040 beds. This (the P.D.M.S. wrote) should be "a real good hospital"—the huts to come with it from England. For this purpose the new Australian general hospital, No. 3, which arrived in England on June 28th, was selected by the War Office. Movement orders were received by its commanding officer (Colonel T. H. Fiaschi) on July 1st, and on the 12th the unit left for Lemnos *viâ* Alexandria on the troopship *Simla*. Its equipment was put in another transport—with disastrous results.

On the military side the opposite policy was being pressed, namely, the development of Lemnos for light cases. The object was to promote their more prompt return to duty—now a burning question. At a conference held at General Headquarters, M.E.F., on July 8th on the subject of "getting sick and wounded sent back to their units at the first opportunity," it was agreed to adopt, among others, the following measures:—

Important conferences

That Mudros be developed for the reception of from 6,000 to 12,000 "light cases," *i.e.*, those likely to return to the front within a period of 21 days; and that the D.D.M.S., L. of C., should exercise such control of cases arriving at Mudros as effectually to stop at Mudros all sick and wounded except those unlikely to recover within 21 days.

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That officers commanding hospitals in Cairo, Alexandria, and Malta be instructed that, at the earliest date possible during convalescence, cases should be re-transferred to the more salubrious and cooler climate of Mudros. All convalescents in Egypt and Malta to be sent at once to Mudros. No invaliding to take place from Mudros.

A general routine order, issued by Sir Ian Hamilton, laid down in detail the system to be adopted for the disposal of casualties discharged from hospitals at the intermediate and expeditionary bases. These instructions reflected, besides the special requirements of the expedition, certain developments now taking place in England in connection with the summoning of national resources in man-power (like the runner's "second wind") for the long-distance race to which it was now evident the warring nations were committed. The account of the medical involvements of this important development is deferred till a later chapter.

At the beginning of July the hospitals at Lemnos could accommodate some 2,500 cases, chiefly slight and infectious. Very little developmental work had, however, been done on shore. When leaving for Egypt on July 7th, the Principal Director of Medical Services drew the attention of the War Office to the serious hindrance to effective evacuation caused by the lack of piers and other facilities for transhipment, and of sweepers, barges, and (in particular) launches for medical purposes. For three months the D.M.S., M.E.F., and the D.D.M.S., Lines of Communication, had been seriously handicapped by these deficiencies.[15]

Lemnos inadequately developed

The arrival of new British divisions, however, brought things to a head, and from mid-July great efforts were made to develop the intermediate base in time to meet the requirements of the huge operations now imminent. The military situation in connection with these was gravely complicated by a rapidly rising flood of sick evacuated from the Peninsula, where an outbreak of intestinal disease had reached serious dimensions. The course of this trouble must now be followed.

[15] Early in June the Chief Commissioner of the British Red Cross Society, who arrived to open the Red Cross store at Lemnos, wrote: "To distribute our stores . . . it is absolutely essential we should have motor boats. . . . I arranged to either hire or buy a small motor boat for the use of the D.M.S., and authorised the expenditure of £100 for this purpose. . . . That shows . . . the very urgent need for motor boats, even for the D.M.S., who could not get about."

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CHAPTER XII

DISEASE AT GALLIPOLI

In June and July the troops on the Gallipoli Peninsula were swept by a wave of intestinal disease, predominantly fly-borne; of which the nature and cause were only gradually recognised by the regimental and divisional staffs, and more slowly still by G.H.Q. This delay was partly due to the principle of the Army Medical Service which made water the first object of suspicion. A desire to retain slight cases at the front for military reasons increased the spread of infection, and when the nature and cause were realised the outbreak was beyond control. A flood of sick poured into the hospitals, the fighting ranks were gravely thinned and, when the crisis of the campaign arrived, a large percentage of the men who remained on duty were fit only for a short-lived effort.

* * *

British Field Service Regulations laid down that—

> A knowledge of sanitation and of the best means of preserving health is incumbent on every officer and soldier. The importance of sanitary measures, whereby health is preserved, and the effective strength of the army maintained, cannot be over-estimated.[1]

The A.I.F., when it took the field, was composed of men in the finest physical condition. "Superb specimens," General Hamilton considered them. "Fit as fiddles, hard as nails," a regimental medical officer records. The outbreak of sickness due to camp and other conditions in Egypt had quite subsided, and had on the whole left little mark. "Unfits" had been eliminated; the force was healthy.

In respect of freedom from disease the keystone of the arch maintaining the force in the field was (and is) the regimental medical officer with his fine "regimental medical establishment": and this is true for all measures of prevention, whether indirect—by removal of infected and potentially infective individuals, or direct—by "sanitation" and other precautions in the field.

[1] *Field Service Regulations, 1914, Part II, para. 83.*

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The Mediterranean Expeditionary Force was imperfectly organised to support that officer. The machinery in the British Army (and in the A.I.F.) for translating medical principles into military procedure for the prevention of disease has in part been described.[2] Though it had been reconstructed after the South African War, this new machinery was by no means perfect. The right of direct communication with the G.O.C. had been lost, nor was the improved executive that had been gained altogether ideal. No provision, for example, had been made for a divisional sanitary organisation behind the regimental medical establishments. In the M.E.F. these defects were aggravated—the subordination of the medical side was extreme: the Director of Medical Services was kept strictly outside the councils of the general staff, and was, moreover, imperfectly in touch both with divisions and with lines of communication. No "A.D.M.S., Sanitary" had been appointed to General Headquarters, nor any medical administrative officer to Corps. Diagnostic laboratories and specialists—for example, in tropical diseases—were lacking, as was also adequate accommodation for infectious disease in the form of stationary hospitals. In the divisions of the A. & N.Z. Corps, and also in the 29th, some effort had been made to meet certain of these shortcomings. In addition to the D.A.D.M.S.—who was responsible for sanitary administration—both Anzac divisions had appointed a "water specialist." The A.D.M.S., 1st Australian Division, had asked for special permission to form a divisional sanitary section, but it had been refused.

Defects in British provision

The senior combatant officers of the A.I.F. were undoubtedly seized of the importance of disease prevention. It is evident, however, that among junior officers and in the rank and file life in Egypt and in the transports had in some measure deadened the sense of personal responsibility. A regimental medical officer on shore at Lemnos warned his

Laxity prevalent

[2] The scientific teaching in the British Army on disease prevention was contained in the excellent *Manual of Elementary Military Hygiene (1912)* and in *Royal Army Medical Corps Training (1911)*, and was then sufficiently abreast of current knowledge of the causes of transmissible disease.

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commanding officer: "I wish to bring to your notice in a spirit of most serious apprehension the laxity in the battalion in respect to the fouling of ground. If the habit persists the consequences later may be grave."[3]

Preventive measures against disease are effective in proportion as the probable nature and cause of diseases are foreseen and appropriate preparations made. Every campaign has its own special health problems, and these may be either intrinsic or may originate in the conditions of the campaign itself. The former are for the most part concerned with the inherent "carrier" state, natural or acquired, of the troops, whereby the organisms of transmissible disease, quiescent in tonsils, naso-pharynx, gall-bladder, intestines, skin, or blood, are carried everywhere, like a veritable "Old man of the Sea." The latter include such factors as climate, season, endemic diseases, food supplies, character of warfare, and so forth—which have an important bearing on the incidence of those types of disease that are dependent on physiological factors or are due directly to physical environment. In connection with the first, the Director-General of Army Medical Services at the War Office had urged special care in preventing cases of enteric from becoming carriers; but no steps were, or under the circumstances could be, taken to eliminate "carriers" of enteric, malaria, dysentery, and so forth. The carrier state of the A.I.F. can hardly be estimated, but it can be taken as inevitable that an army will carry "enteric" bacilli, and commonly also the organisms of dysentery. Moreover, conditions in Egypt had favoured recent infection from the native population, among whom dysentery, amœbic and bacillary, was endemic. Sporadic cases and unit outbreaks of these diseases had certainly occurred in the A.I.F. As regards typhus and relapsing fever, the louse population of the A.I.F. was uninfected, and there were no carriers. Of inspiratory and pharyngeal infections, measles, mumps, and

Diseases carried by A.I.F.

[3] In the transport *Ionian* at Lemnos a forceful S.M.O., faced with blocked latrines and a filthy ship, records in his diary how he "bullyragged, bull-dozed, and finally beat into subjection" careless officers and men and an obstructive ship's company. He concludes more cheerfully: "Now that they see the benefit, I am not regarded so fiercely."

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scarlet fever were still sporadic: the organisms of diphtheria, "influenza," tonsillitis, and so forth, were carried about in throats, staphylococci and streptococci in the skin. Scabies was present—potentially, from the military point of view, a serious trouble.[4]

Local conditions

Of epidemic diseases prevalent on the Mediterranean littoral, cholera and typhus were the most important. The first had decimated both Turkish and Bulgarian Armies in the Balkan War: the latter was even now raging in the Near East. Besides these, dysentery (amœbic and bacillary), enteric, malaria, relapsing fever, and Malta fever were endemic: sandfly fever was prevalent.[5]

The opening of the campaign synchronised with two great changes in the aetiological circumstances of the A.I.F.—from camp life to the field, and from winter to summer. The import of the former will be obvious; in connection with the latter a word is necessary. The scientific progress of the human race has been effected by a progressive elimination of mystery and fetish in the study of the phenomena of life. Among such phenomena in the domain of preventive medicine, that of epidemic periodicity in transmissible diseases and, as a sub-issue, that of seasonal incidence, remain among the mysteries as yet unsolved. Both are often accounted for by postulating a vague periodic impulse inherent in the protoplasm of the causative organism. In accordance with experience in the A.I.F., in camps, transports, and the field, explanation of seasonal incidence will here be sought without invoking aetiological factors other than such as can be clearly apprehended in the light of biological and physiological knowledge.[6]

No special information or instructions were issued by the D.M.S., M.E.F. A general policy for disease prevention

[4] In France this disease was already providing for the medical department and quartermaster-general's branch of the army one of their most difficult common problems.

[5] Concerning the Gallipoli Peninsula a description was given by a physician of some years' experience in Turkey (from whom a special report on prevailing diseases was obtained for the expedition) of a vague combination of fever and flux locally termed "Beach Fever."

[6] The course of the events in respect of disease, and the elements in the sick wastage of the A.I.F., are illustrated in graphs shown on *p. 347*, and at *p. 466*.

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was laid down for the expeditionary force in "standing orders," issued before the Landing, of which the following is an epitome—

Standing orders for sanitation

MEDICAL.—(*a*) *Sanitation on lines of communication and on areas of concentration.* The initial arrangements should be such as will prevent centres of infection being formed.

Incineration of infective matter and all camp refuse which affords breeding facilities for flies will be adopted to the utmost possible extent. . . . Shallow trench latrines will be used whenever space is available; if this is not possible, a definite area will be allotted. . . .[1] The best disinfectant is liquor cresoli saponatus 1½ ozs. to 1 gallon.

(*b*) *Regimental sanitary detachments.* (Personnel to be trained, and "changed as seldom as possible.")

(*c*) *Water supply.* All water not passed through a filter cart requires boiling. . . . Water bottles should, when possible, be filled with weak tea.

(*d*) *Food protection.* All food must, as far as possible, be protected from flies and dust. Uncooked fruit should be sparingly eaten.

(*e*) *Fever and diarrhœa.* In order to ensure detection of cases of disease, every individual suffering from fever or diarrhœa will be sent sick by Officers Commanding at the earliest opportunity.

(*f*) *Disinfection of infected articles.* Articles used by men suffering with disease . . . of infectious nature, *i.e.*, fever or diarrhœa, are to be disinfected.

(*g*) *Cleanliness of clothing.* (Directions as to washing and changing.)

A list of "notifiable" infectious diseases, to be reported each Saturday, was issued.

Sanitation—regularised by May 1

During the first three days neither the troops fighting for existence nor regimental medical officers could take much thought for the morrow. At Anzac Cove, under direction of the deputy-assistant-directors of medical services, latrines were dug on the first day, but elsewhere sanitation, as usual, "went by the board." "I confess I did not give it a thought," a regimental medical officer says. Without doubt, as always in battle, water was drunk indiscriminately; but no

[1] The official form of field latrine (introduced after the Boer War as an alternative to the deep pit with the pole for seat) was a trench three feet by one, by two in depth, to be straddled. It was based on the destructive action on human excrement of the bacteria in the superficial layers of soil (humus). Covering of excreta with soil was an essential feature; this covering up was to be done by the individual, though the necessity for supervision was recognised "so long as the sanitary foresight of men remains as at the present low level." (*R.A.M.C. Training, 1911.*)

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local source of contamination existed. Within twenty minutes of the Landing the engineers were digging wells in Shrapnel Gully, and within twenty-four hours twenty wells were giving twenty thousand gallons of water daily. A few "organic impurity" tests were carried out by the "specialist water officers," but, as is habitual in the field, reliance was placed chiefly on common-sense observations of the surroundings.

When after the first few days the battalions were reorganised, medical officers collected the remains of their sanitary detachments,[8] and the quartermasters their "pioneers." Sick parades recommenced, and sanitary discipline was taken in hand. By May 1st the front line, with its exact regimental organisation, had more or less "found itself." Where space permitted, orthodox shallow latrines were dug; elsewhere (as at Quinn's Post) limited space necessitated deep pits—"the trouble is, there is no safe spot." Refuse was disposed of chiefly by burial, incineration being forbidden as "drawing fire."

Though the check to advance was expected to be short, the importance and difficulty of sanitation under existing circumstances were realised by the Anzac command. On May 2nd a corps order enjoined the immediate construction of latrines, disposal of refuse, and guarding of the water-supply. Behind the brigade areas a unique situation developed. Being practically an advanced base or "railhead," the cove should have had a sanitary section or squad. At Anzac, however, the area was placed under the corps assistant-provost-marshal ("A.P.M."), on whom devolved the sanitary control, the "A.D.M.S., Anzac," being made responsible for evacuation only.[9]

Behind the lines—provisional measure

On May 4th "the whole beach and hills as far inland as brigade headquarters" were for sanitary purposes divided into north and south divisional areas. In each

[8] In one battalion every sanitary detail was either killed or wounded at the Landing.

[9] At Helles the larger area occupied permitted much more complete organisation. An advanced base was formed, with the A.D.M.S. and a sanitary officer under the D.D.M.S., Lines of Communication; and a "sanitary section" formed part of the organisation for the beach area.

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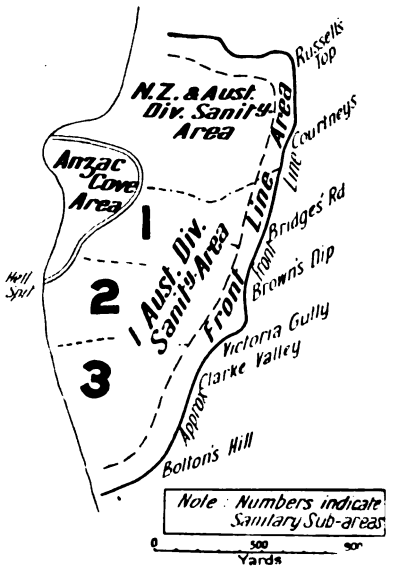
of these, divisional "fatigues" in the vicinity of the cove carried out somewhat desultory sanitary activities. Between the cove and the front line lay an area occupied by assorted units—such as the mule trains, reinforcements, resting and reorganising battalions. This was, as always, a sort of sanitary "No-Man's Land," and a potential source of danger. It was traversed by the highways between the Beach and the front line and had been thoroughly fouled. Partly to relieve the fighting units, but chiefly to make the sanitary control of this area a medical matter, the A.D.M.S., 1st Australian Division, on May 4th detailed a tent sub-division of the 3rd Field Ambulance for sanitary work and inspection, acting under the D.A.D.M.S. and a special non-commissioned officer. This step heralded official recognition of the principle of a divisional sanitary section—in the evolution of which the A.I.F. was at a later date very closely concerned. The N.Z. & A. Division relied on combatant fatigues.



By May 8th the A.D.M.S., 1st Australian Division, was able to report that forty latrines had been dug "accessible to the main tracks and kept under daily supervision," and that, "as far as possible," refuse and excrement had been collected and buried. By the end of May it had become evident that a strategic advance was not to be yet, and that more permanent arrangements must be made for the cove. On May 26th "an Anzac Cove area" was defined, the A.P.M. of the A. & N.Z. Army Corps being made commandant and a "medical officer sanitary" appointed. Anzac was thus allotted for sanitary

The Cove area

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purposes into areas as shown in the marginal sketch. The little cove area—comprising the hillside above the Beach—housed 2,500 men and 300 mules.

The change in the military outlook coincided with the beginning of a great change also in the conditions of life and health of the troops. The days had been cool, nights even cold (a blanket per man was issued on May 6th). The tracks down the hillsides ran through thick scrub or on green sward: clear streams trickled down the gullies. Though as early as May 4th a corps order had prohibited the use of any fresh water for washing, the shortage had not yet been seriously felt. The ration of biscuit, "bully" beef, bacon, cheese, and jam had been relished, and from the middle of the month had been supplemented by occasional fresh meat, potatoes, and onions. The men had been very "fit"; there had been little disease.

The health of an army in the field is first reflected in the regimental medical officers' sick parades. On May 5th one reported: "very little sickness; some cases of influenza and a little diarrhœa" (ascribed to "clay in the water from the wells.").[10] For the first week in May the A.D.M.S., 1st Australian Division, records "a few cases of diarrhœa and a number of influenza, otherwise health of the troops good."[11] By the end of May—though health was on the whole good and the prevalent diseases were still mild inspiratory and pharyngeal infections, "rheumatism," the dregs of venereal, and some diarrhœa—the minds of medical officers were exercised by a feeling, as yet vague, that all was not well in the matter of intestinal infection. The proportion of diarrhœa had become greater; occasional severe cases, and even suspected dysentery, were reported. On May 29th the regimental medical officer above quoted records that in his battalion diarrhœa was "increasing," and "contamination" was recognised as a possible cause in addition to "irritation." "Flies are becoming prevalent." A sense of uneasiness is

First signs of intestinal trouble

[10] This aetiological error was very widespread, being taken from the military handbooks, wherein this factor was unduly emphasised.

[11] The general admission rate for the month, and its analysis into aetiological groups, are shown in the graphs at *p. 347* and *466*. See also graph facing *p. 318*—the sick parades in the battalion referred to here.

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evidenced by the request of the regimental medical officer for information as to "the possibility of more serious forms" of intestinal infection.

and of Flies

In both divisions there is recorded a considerable increase in diarrhœa ascribed to various causes. In the New Zealand and Australian Division "men are suffering from diarrhœa: this is largely due to abdominal chill . . . cholera belts[12] recommended." In the 1st Field Ambulance there is "a considerable amount of diarrhœa, due possibly to whole-meal biscuits and excess of onions; no dysentery so far: flies in great numbers."

The last week in May and the first in June were critical in the health history of Anzac, indeed, of Gallipoli in general. That the writing on the wall was seen at Anzac is evident, however imperfectly it may have been deciphered, and endeavour was made to act on the warning. In both divisions the assistant-directors of medical services took action which was essentially the same.[13] In the 1st Australian Division the D.A.D.M.S., as sanitary officer, issued on June 4th a "Memorandum on the preservation of the health of, and cleanliness of the area occupied by, the troops in the Field." A preamble directed the attention of commanding officers to *Field Service Regulations* ("Personal responsibility of every officer and man") and continued: "With the advent of warm weather, flies, limited water, etc., the danger of cholera, diarrhœa, and dysentery are ever present." In particular the need for covering excreta with soil was emphasised, and use in latrines by sanitary personnel of one-in-ten cresol was enjoined. Refuse, "when possible," was to be burnt, otherwise "buried, at least once a day"; food, as far as possible, to be protected from flies; all water, except from selected wells, from water-carts (in which it was to be chlorinated), or imported, was to be boiled. Instructions were given concerning lice—"clothing to be soaked in cresol." The "fly-proof" pit-latrine had not at

Warning—but lack of higher control

[12] A flannel band worn round the abdomen.

[13] The history of the New Zealand Medical Corps gives a fine account of New Zealand experience.

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this time been thought of at Anzac.[14] On the combatant side, brigade staffs began to exercise strong pressure on battalion commanders. Regimental medical officers found themselves fully supported. The cleanliness of the trenches became almost a fetish. The A.D.M.S. demanded from regimental medical officers daily reports on health, sanitation, and water.

Except for the "standing orders," and a warning against typhus, no instructions in regard to prevention of disease were received from General Headquarters, nor was any visit made. On June 6th the D.A. & Q.M.G. of corps, as the ultimate "medical" authority at Anzac, asked his assistant-directors of medical services and the camp commandant by personal letter whether he "could help in any way." Replies were received by letter, but no conference was held. This absence of concerted action, controlled by higher medical authority, was without doubt unfortunate.

Both assistant-directors of medical services agreed that the orthodox shallow-trench latrine must be abandoned for the deep pit with pole; but the view of the D.A. & Q.M.G. that for refuse "we must stick to digging deep holes into which refuse should be dumped and covered with dry earth" was disliked. Both A.D'sM.S. favoured incineration, but, in the face of military opposition, fuel shortage, and the difficulty of disposal at sea, agreed to deep pits, "to be covered," Colonel Manders urged, "with two to three inches of earth daily; otherwise flies will breed in the pits." Disposal of manure had, as usual, been attended with great difficulty. Action was unconcerted. The 1st Australian Division recommended punting to sea, or, as an alternative, burial, "though this would not be so effective in preventing the breeding of flies." Ultimately burning—the usual method in India, and there easy—was attempted, but was slow, and the flies got ahead of it.

Measures against flies

The history of disease at Anzac is, indeed, in no small measure the history of the flies.

During the first few days at Anzac (the R.M.O. of the 4th Battalion has recorded) I did not see a fly; there were practically no

[14] The 89th British Field Ambulance at Helles used flyproof latrines in June and they were partly introduced in the 29th Division, whose fine sanitary discipline (as their military) is reflected in their low sick rate.

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grazing animals, the country sparsely populated, and it was cool. About the third week I noticed a few flies. Being interested in this subject,[15] I looked round for breeding-places and came on the "refuse pit" of an Indian Mountain Battery. It had been covered over lightly with soil. At the surface of the soil were pupæ, and, digging down a few inches, I found larvæ in enormous numbers. I reported this, and suggested larger supplies of disinfectant, particularly blue oil. The flies increased rapidly, and by May 19th small flies (musca domestica and M. homolyia) were very numerous, also large flies; bluebottle and greenbottle.

Mid-June—fly plague

By the middle of June, in fact, they were everywhere; with a pardonable hyperbole it was recorded that "you could not eat without eating flies." By this time it was very hot. No rain fell, the streams dried, scrub disappeared as firewood, tracks became dust. In addition to a rapidly increasing prevalence of gastro-intestinal disease, the effects of restricted water, monotonous ration, fatigue, lack of rest and relief, together with the continuous strain of fighting, were becoming evident. During the whole of this time every man in the trenches had stood to arms from 3 till 5 a.m. and slept fully clothed and in boots. Except for shaving, all washing was in the sea—which soon became the one, and an inestimable, source of pleasure and health.

But the outstanding feature in the picture is the rapid advance of intestinal maladies. This is conspicuous in the graphs of disease. In the case of the battalion from whose records quotations have been made, the daily reports to the A.D.M.S. show a swiftly increasing prevalence from June 11th, when "an outbreak of diarrhœa with colic" occurred in a company which, contrary to orders, had kept a fresh meat stew, and had issued it after two days. On the 14th an urgent case of flux, diagnosed as possibly cholera, was evacuated. Pyrexial cases were evacuated undiagnosed, or else as "suspected typhoid" or, commonly, "influenza."[16]

The possibility of an infective cause of the diarrhœa was being generally recognised, though still doubtfully. In the

[15] Research carried out in the Lister Institute in 1912 by this officer (Capt. A. H. Tebbutt, A.A.M.C.) proved that, while *B. Typhosus* could be recovered from the pupæ of flies bred in typhoid stools, it could not from the imago.

[16] The further course of the outbreak of disease in this battalion is shown in graph at *p. 318*. It clearly illustrates the large amount of sickness treated in the lines by the R.M.O.

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middle of June the fact that cases of enteric had been diagnosed was notified to the assistant-directors of medical services by General Headquarters. The nature, origin, and mode of dissemination of the various intestinal infections—which by the end of this month began to approach epidemic prevalence—were, it is evident, far from clear to those on the spot. They were, indeed, working much in the dark. Though since the South African War the rôle of the fly had been recognised, water-borne disease always loomed most ominous and its control in the field was at this time very difficult. At Anzac water was drawn from two sources: first, shallow wells, and, second, an overseas supply brought from Egypt and elsewhere in tank ships, transferred at Lemnos to barges, and pumped ashore. Large supplies of bleaching powder had been brought by the Australian water-officer, but the difficulties of its general use were prohibitive. Boiling was not carried out, except in making tea; many men drank unboiled water. It is clear, however, from the vantage-point of retrospect, that the possibility of the epidemic being water-borne is exceedingly slight. The overseas water was drawn from recognised supplies. The wells were fairly guarded from surface contamination: there was practically no rain; the amount of moisture in latrines was not sufficient to percolate through the soil and reach the shallow wells, even in the gullies. Moreover the course of the epidemic outbreak and its character were quite unlike the local fulminant outbreaks characteristic of water-borne infection. A battalion which drew only from a well absolutely safeguarded suffered equally with others.

Infection suspected but doubted

Suspicions as to water

The cook "carrier" may be eliminated as a factor of prime importance, since at Anzac at first a large proportion of the men cooked for themselves; moreover, the methods of field cooking by company and section do not lend themselves to this mode of transmission.[17] Dissemination of infective

Incrimination of the fly

[17] In headquarters' messes it was more likely to be an important element in the risk of infection.

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material by dust may also be discarded; not only do intestinal bacteria die rapidly when dried, but promiscuous defecation very soon ceased. "Dirt" otherwise conveyed (as by the hands) must have had a place—possibly an important one—in the infection of food. There remains the house fly: and this ubiquitous insect must be incriminated as the prime factor in the intestinal outbreak. Their huge numbers have been mentioned: their access to food and to latrines was, for the practical purpose of infection, unrestricted. In the matter of food, while material for fly-proof safes was at first unobtainable—the cooks at Anzac scarcely had a fair deal—the most constant and tedious individual vigilance was hardly rewarded. It may be conjectured that in the soldiers' mess-tin was to be found the most important passive agent in the cycle of infection. Meanwhile the efforts to restrict the access of flies to excreta in the latrines were even less effective. Few latrines at Anzac were not exposed to direct or indirect fire, and many men were killed or wounded there. The plight of the unfortunate dysenteric, forced to relieve himself every half-hour or so, may be imagined. Cresol, as a fly deterrent, was tested by experiment but was "found almost useless."[18]

Deterrents refused

Heavy mineral oil ("blue oil"), a popular fly deterrent in New Zealand, and chlorinated lime were applied for. The D.M.S., M.E.F., however, refused to sanction the request, considering that the official cresol preparation was adequate. He deprecated reliance on "deterrents," urging that the only way to deal with the flies "is to destroy their breeding places" by incineration: he recommended also "the use of fly papers."[19] But the flies continued to dominate the situation. They fed from the same dish with general and private alike. The warmth that hatched the flies incubated the disease germs also. For lack of water, "dixies" and mess-tins were unwashed. The life-cycle of the infecting

[18] Under other conditions the use of cresol was at times found satisfactory. In *The Secret Battle, pp. 74-81*, A. P. Herbert inimitably describes this plague.

[19] Though the advice as regards breeding was certainly correct and was needed, certain details of the advice—*e.g.*, the use of fly paper "on the bushes"—and the general tone of the correspondence indicate imperfect appreciation of the circumstances. These considerations, together with the absence of personal visitation from G.H.Q., created at the time an unfortunate impression and a loss of confidence, not altogether justified, in the higher medical administration of the M.E.F.

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agent was complete. Each infected man acted in turn as a fresh focus of disease, of which the indefinite spread was limited only by the resistance of individuals exposed.

Other causes

Here is opened up the question of the relative importance of infective and — to generalise — physical factors in the incidence of disease at Anzac: causes of disease other than infective have hitherto been only touched upon.[20] Of factors other than infection in the production of disease, shortage of water, fatigue, and food must be considered. By far the most important was food, in association with which came dental trouble as a contributing cause of disability.

Food

From the Landing onward the A.I.F. experienced new food and new feeding. The lavishness in Australia and liberality in the transports had been reduced in Egypt by rationing, but the food had all been fresh and could be supplemented by purchase. In the transports at Lemnos biscuits and tinned beef partly replaced bread and fresh meat. For the Landing the iron ration was issued,[21] to last three days, after which the normal service of supply commenced.

An army "moves on its belly," and the supply and distribution of food, fuel, and water for the maintenance of its men, animals, and machines is a problem of the most extreme complexity; in this campaign it was accentuated by the amphibious circumstances. From the dépôt units of supply[22] on the Beach—fed in their turn from the supply ships, whose cargoes were brought by barges to the piers—the unit quartermaster and his fatigue party man-handled the ration to the quartermaster's store immediately behind the firing line, where it was taken over by companies. Normally the meat, vegetables, and tea would be taken by the company cooks, the remainder distributed to "sections." At Anzac, except at the various headquarters, the practice of individual cooking was at first almost universal, the cooks making only tea, for which they received a ration of water.

[20] The graph (*p. 466*) comparing infective and non-infective disease, and its further analyses, may, with advantage, be examined.

[21] This consisted of a bag of small biscuits, a tin of "bully" beef, tea, and sugar.

[22] See diagram facing *p. 208*.

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In the food ration laid down for the M.E.F., the normal British Army ration[23] was modified in certain particulars.[24] At first it was the "hard" ration only, brought from England. This for a time was relished; the weather was cool, and individual cooking added interest to life. But the "bully" beef soon became monotonous,[25] even when hashed or otherwise cooked up. Some brands were of poor quality,[26] stringy and excessively salt. This saltness of the ration became an important factor in the distaste for food which, before long, caused concern. The heat and physical toils increased. The bacon, packed in salt, and the cheese (very salt and, by the time it reached the soldier, soft and smelly) lost their relish. The saltness was accentuated by the scanty water-ration. This scantiness was more than a mere shortage for washing; with a loss through sweating, which was often excessive, was frequently associated a very inadequate intake.[27] Fresh food was supplied in the form of potatoes and onions as an occasional issue during May, June, and July, ¼ lb. of each, "when available," being substituted for dried vegetables. Potatoes, however, soon ran out, the cost being considered prohibitive, and from July the occasional issue of onions was the only alternative. From the end of May fresh frozen-meat became an issue twice or thrice weekly. On June 9th, and thenceforward regularly on alternate days, bread baked by the 1st Australian Field

Rations become distasteful

[23] Suggested in "Allowance Regulations." The special ration for active service was fixed by the Secretary of State for War according to the circumstances of the campaign. Fresh food might be substituted locally.

[24] "The scale of rations after leaving Egypt will be 1¼ lb. fresh meat or 1 lb. (nominal) preserved meat; 1¼ lb. bread or 1 lb. biscuits or 1 lb. flour; 4 oz. bacon; 3 oz. cheese; 2 oz. peas, beans, or dried potatoes; ⅝ oz. tea; ½ lb. jam; 3 oz. sugar; ½ oz. salt; 1-20 oz. mustard; 1-36 oz. pepper. (At discretion of G.O.C. on recommendation of S.M.O.—1-10 gill limejuice; ½ gill rum; tobacco not exceeding 2 oz. per week.)" (From *General Routine Order No. 50.*) Energy value in calories, approximately 4,500. In France the B.E.F. received, in addition, milk 1-16th of a tin, pickles 1 oz.

From June 18 "the following scale of equivalents will obtain when the various commodities are available:—6 oz. preserved meat *or* 10 oz. fresh meat *or* 4 oz. golden syrup *or* 3 oz. cheese *equivalent to* 4 oz. jam." (*G.R.O. 294.*)

On July 6 the following scale replaced the above:—"4 oz. rice; 4 oz. jam; 4 oz. golden syrup; 3 oz. cheese; 6 oz. preserved meat; 10 oz. fresh meat; 4 oz. dried fruits, all equivalents of each other." (*G.R.O. 399.*)

[25] Had sauce or pickles been issued in lieu of part of the beef ration, the latter would have been relished longer.

[26] In particular that known as "Fray Bentos." Australian tinned beef, which was occasionally issued, was much sought after, being less salt and stringy.

[27] The nominal water ration was a gallon, the actual was often very much less.

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Bakery on Imbros was a substitute for biscuits.[28] The "staff of life" was the only item in the ration of which men never tired. The fresh meat ration was difficult to deal with and was not infrequently refused by the battalions. It was good Australian frozen beef, but myriads of blow-flies and rapid putrefaction often made it uneatable by the time it reached the cook: when stewed, it lent itself admirably—as did the jam ration[29]—to the life-cycle of various pathogenic organisms. By the end of June all the food provided had become distasteful—the heat, the dust, the flies, the intense toil and strain, produced physical and mental nausea.[30]

Combatant and medical officers alike took seriously in hand the endeavour to combat the "monotony" of the diet.

Attempts to vary diet

Under pressure from the brigades and divisions through corps headquarters, the alternatives already mentioned were arranged by the Director of Supply and Transport, M.E.F. At the end of June a scale of equivalents was authorised, "to obtain when the various commodities are available"; on July 6th it was replaced by one more extensive. The lime-juice, at first an occasional issue, was made a regular one—four times a week. The craving for fruit and for more vegetables was referred to G.H.Q., M.E.F., as was also the desire for opportunity to purchase condiments, tinned fruits, biscuits, and so forth through a canteen. The "equivalents" were in some degree available, but it cannot be said that they made any considerable difference in the ordinary daily ration of the soldier. Of cheese, bacon, biscuits, and "bully" beef he always had as much as he wished; bread three or four times a week; fresh meat occasionally. Speaking broadly, though various spasmodic

[28] The 1st Field Bakery arrived at Lemnos early in April, and there watched the French bakers prepare their beautiful loaves for their troops at Helles within five days of the Landing. It was not till six weeks later that they (having acted in the meantime as military police at Lemnos) were established on Imbros and served Anzac with bread.

[29] Jam-tins with "lever" lids might perhaps have obviated this.

[30] On June 9, in submitting recommendations "to prevent the present objectionable arrangements" in the distribution of fresh meat, the A.D.M.S., N.Z. & A. Division reported:—"The meat arrives at the branch A.S.C. dépôt in a shroud and sacking, both more or less torn; thence it is distributed to brigades and units. It is brought to the units uncovered and carried on a man's shoulder or roped on to a pack saddle, arriving at its destination swarming with flies, covered with dust, and with no means of washing it, owing to shortage of water. The meat unissued at the Supply Dépôt is hung on a beam in an open dug-out with an insufficiency of sacking and is consequently fly-blown before issue."

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attempts at variety were made, the food of the men marooned for five months[31] on Anzac remained substantially as stated above.

The dietetic trouble was intensified by the dental difficulties, which will be described later in this chapter. Men with broken plates and diseased mouths succumbed early to adverse conditions. At first regimental medical officers evacuated large numbers for dental treatment, but it was found that usually such men either did not return or returned without treatment, none having been given to them at the base.

The point of view must now be shifted to the spheres of action of the "army" and the Inspector-General of Communications. On May 26th the D.G.A.M.S. at the War office (Surgeon-General Keogh) was informed by the D.M.S., M.E.F., that there was "little sickness . . . no enteric and no real dysentery." Actually, however, many cases ultimately diagnosed as enteric had already been evacuated.[32] On June 3rd the D.M.S., M.E.F. (Surgeon-General Birrell), records "cases of enteric coming from Anzac and Helles." On June 9th the health at Anzac was "good," on the 14th "cases of diarrhœa and bronchial catarrh coming in, due to dust, smells, and exposure"; as a remedy, another "armistice" was suggested by him "to clear bodies." On June 12th the *Dunluce Castle* (a recently fitted "black" hospital carrier) with staff of 10 nurses, 5 M.O's, and 30 orderlies, was stationed at Mudros as "typhoid ship," also accommodating the graver cases of "enteritis" and "dysentery." From this time the trickle of "typhoid" cases increased to a stream. On the 16th the D.M.S., M.E.F., visited Mudros, and arranged that "typhoids" should go to Egypt, "other infectious" to the stationary hospitals on Lemnos. Dysentery, "diarrhœa," and "influenza," not being officially infectious, went to the base or to Lemnos according to their severity—"under" or "over 14 days" respectively. Lacking the searchlight of a laboratory, enteric

Cause unrecognised by G.H.Q.

[31] The shortest period before the effective relief of any formation on Anzac.

[32] From the diary of No. 16 British Stationary Hospital at Mudros:—
May 30. Admitted "4 cases of enteric fever—contracted at Cape Helles."
June 3. "Separate camp pitched for enteric fever patients . . . 16 in hospital and number is increasing daily."

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was detected with difficulty and exact diagnosis of dysentery was not attempted. Though the numbers of cases of this disease evacuated were not yet such as seriously to tax the resources of transport and accommodation on the lines of communication, and do not appear to have caused any considerable apprehension, they were rapidly increasing, while still ascribed to every cause except the true one. But the situation in respect of disease was, it is clear, out of hand. The existence of three independent medical administrations made impossible the initiation of a broad and vigorous policy to meet the crisis now developing.

First scientific investigation

The first move, indeed, to promote the scientific investigation of the symptom-groups that made up the "diseases" in the rapidly swelling wastage from Gallipoli was from outside, in connection with action taken by the Egyptian authorities to prevent the introduction of cholera into that country in case of an outbreak at the Dardanelles. This disease—the nightmare of Egyptian health authorities—is aetiologically closely allied to dysentery. Its higher potential death-rate impelled to action which had favourable consequences in connection with the lesser intestinal infections. In response to initiative taken by the Director of Quarantine, Sir Armand Ruffer, the D.M.S. for the Force in Egypt (Surgeon-General Ford) in May ordered special observation of all incomers from Gallipoli, with bacteriological examination, where necessary, at the quarantine laboratories. An expert from the Egyptian Health Department was put in charge of a scheme to safeguard Egypt which soon developed into a general protective campaign for the M.E.F. Provision for preventive inoculation had already been made by the War Office, and vaccine was sent from England.

In a special memorandum Sir Armand Ruffer emphasised the risk of reliance on the segregation of "typical" cases, and urged the

> necessity for establishing at the front a laboratory for the early diagnosis of cholera and dysentery. . . . The early diagnosis of cholera, especially when slight, is extremely difficult and often can be settled by bacteriological examination only. . . . There never was a war without dysentery. . . . The physician is now in possession of rapid methods of treatment, provided he can tell what kind of

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dysentery—bacillary or amœbic or mixed—he is dealing with. This differential diagnosis is a hopeless task unless controlled at every step by microscopical and bacteriological examination.

Such was the situation when in the second week in June the P.D.M.S. (Surgeon-General Babtie) arrived in Egypt from India. On him fell the responsibility of interpreting to the War Office the medical situation in the Levant and of initiating a comprehensive policy for the prevention of disease. He took up at once the campaign against cholera, and through the High Commissioner for Egypt obtained the services of the Pathologist and Assistant Bacteriologist, "Wellcome Tropical Research Laboratories" (Captain R. G. Archibald), for a laboratory at Lemnos as part of a general scheme. Visiting the hospitals in Egypt, General Babtie was informed of cases of paratyphoid among the "enterics" arriving from the front. The War Office had also arranged that the British "Sanitary Commission" which had been sent to Serbia in connection with an outbreak of typhus decimating that country, and whose efforts, in conjunction with the Scottish Women's Hospital (in which Australian women doctors worked), had met with historic success, should investigate the disease problem of the Dardanelles, acting as an "Advisory Committee of experts" to the Principal Director of Medical Services.

Laboratory of Lemnos

On June 24th the P.D.M.S. arrived at the Dardanelles. He found some 200 cases of enteric in the *Dunluce Castle*, "many doubtless paratyphoid, but only clinical evidence at present." "Dysenteric diarrhœa" he found very prevalent, but "from reports from the French laboratories at Helles very little of the amœbic type." Inspecting the Australian hospitals (which he commended), he noted with approval the laboratory work being done under great handicaps at No. 1 Stationary Hospital, and arranged that the bacteriologist should report on the fevers on the "typhoid ship," *Dunluce Castle*. Arrangements were made also for the establishment of a laboratory at Mudros, to be staffed by Captain Archibald and "a few officers who appreciate bacteriological methods." These officers were

General Babtie's reforms

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to be obtained through the assistant-directors of medical services and were to work in conjunction with a "diarrhœa clearing station." On General Babtie's recommendation the D.M.S., M.E.F. (General Birrell) asked the War Office for an "A.D.M.S., Sanitary," and General Babtie himself asked for clinical specialists and for bacteriologists for three "central laboratories," with offshoots at Helles and Anzac. Sanitary conditions at Lemnos were found to be bad. For example, No. 1 Australian Stationary Hospital, though it incinerated refuse, had only pit latrines infested with swarms of flies; a pail sytem was thereupon recommended by the P.D.M.S. The 89th British Field Ambulance, resting there in July, found things "much worse" than at Helles:—"sanitation practically non-existent." Sir Ian Hamilton himself, inspecting in June, found it necessary to draw attention to sanitary defects due to administrative neglect. The incidence of intestinal infection on the island was already heavy.

Inoculation against cholera

Anti-cholera inoculation was approached with great misgivings as to its reception by the troops. Outbreaks in Turkey, however, precipitated a decision to inoculate: the procedure was to be voluntary, preceded by persuasive lectures, and compulsion was to be exercised only if cases of cholera occurred —the very time, it may be observed, when inoculation might involve a small amount of risk. Relying on the high standard of education and of essential discipline in the Australian force, the Australian command favoured straightforward compulsion and exact procedure, as heretofore exercised in the A.I.F. Though this was not permitted, compliance by the troops was taken for granted, and this assumption proved to be justified. A precise scheme was organised and carried out with military precision, the only difficulty being caused by the prevalence of diarrhœa, which necessitated postponements in individual cases.

Inspection of Anzac by the P.D.M.S. on June 27th revealed, as at Helles, a complete breakdown in the prevention of intestinal infection by direct measure. It is evident that he appreciated both the difficulty and the seriousness of the situation.

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By the second week in July indeed, there had occurred a great change for the worse, rendered inevitable by the conditions already described of Anzac, and presaged by the rising sick rate in June. A glance at the statistical tables will make clear the special features of the latter. The two great factors responsible for disease, namely, lowered physical resistance and infection, had combined to produce widespread ill-health.[33] The picture of disease, as drawn in reports written amid the very dust and heat of events, and now reproduced in more exact and definite form in the figures of statistical analysis, is one of extraordinary interest. In the production of the morbid state there can be recognised the influence of a factor vaguely suspected at the time but of such elusive quality as to make definition difficult. Among the Indian mule-drivers there had occurred cases of scurvy, and, though no signs of it had appeared in the European troops, the insistent demands for lime-juice as a regular issue and for fresh vegetables indicate a wide feeling that some specific dietetic factor was at work. Apart from infection, influences tending to disease certainly operated increasingly. Dental disease had become widespread, and was the source of much distress and a considerable amount of disability: by the end of July, from the 1st Australian Division alone, 600 cases had been evacuated for this cause. The trouble, as met with at the hospitals on the lines of communication, was brought to the notice of the P.D.M.S. by the officer commanding No. 1 Australian Stationary Hospital (Lieutenant-Colonel H. W. Bryant). "All cases of broken plates," General Babtie found, "are sent to Alexandria," a proceeding due to lack of material and to the fact that the one dentist who had worked (unofficially) at Mudros had broken down. On his visit to Anzac on June 28th the situation was brought forcefully to his notice by the A.D.M.S., 1st Australian Division; at whose request he cabled at once and strongly to the War Office with a view to obtaining from Australia

July—a crisis in disease

Dental trouble

[33] The R.M.O. 15th Battalion (4th Brigade), being asked by his A.D.M.S. for the "cause of the excessive number of sick evacuated," replied: "long hours, heat, irregular hours for meals, insufficient rest, want of fruit and vegetables; all cases (and the battalion as a whole) suffering from enteritis."

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42. MONASH VALLEY PHOTOGRAPHED FROM THE FOOT OF MACLAURIN'S HILL, WHERE IT JOINS BRIDGES' ROAD

The sandbag traverses were made to give shelter from the Turkish snipers at the head of the valley. *See marginal sketch on p. 206.*

Aust. War Memorial Official Photo. No. G1072.

43. THE ADVANCED DRESSING STATION NEAR THE HEAD OF MONASH VALLEY

This is an earlier photograph of the station shown in plate No. 26.

Lent by Chaplain the Rev. G. Green.
Aust. War Memorial Collection No. A2693.

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44. Rest Gully, Anzac, showing rest station

This station, which is indicated in Map No. 7, may be seen at the foot of the gully.

Lent by Lieut.-Colonel P. Fiaschi, A.A.M.C.
Aust. War Memorial Collection No. A2721.

45. Anzac Cove, looking south from Ari Burnu

Gaba Tepe may be seen in the distance.

Lent by Colonel A. Sutton, A.A.M.C.
Aust. War Memorial Collection No. A2705.

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official provision for facilities for dental treatment at the actual front—for at the front a few dentists, who in the absence of a dental service had enlisted in combatant and medical units, by their voluntary efforts were demonstrating a "yet more excellent way" of maintaining dental fitness in the force even than by the provision of facilities for effective treatment at the base. The results of this cable, as will be seen later, were important. In the meantime, in consequence of its futility, evacuation for dental disease alone was stopped, and from the middle of July all dental cases were retained at the front until they became useless.

On the infective side gastro-intestinal disease dominated the situation, and by the end of July was quite out of control.

Intestinal disease goes beyond control

The latrine poles were perpetually thronged by men, so that attempts at covering or disinfecting excreta became a farce. Black swarms of flies carried infection warm from the very bowel to the food as it passed the lips; they contaminated the unwashed mess-tins. Men passed through repeated attacks and relapses; or the disease became chronic and caused violent colic after taking any food. As the heat became greater and the flies and foci multiplied, intestinal disease became almost universal. The number of "enterics" evacuated from both fronts greatly increased.

The seriousness of the situation was strongly felt at Anzac by the divisional and corps commands. Action took the form chiefly of endeavours to improve the diet (already mentioned) and to obtain rest and suitable treatment for the troops. During the first two months the efforts of regimental medical officers to avoid the necessity of evacuating men had been backed by a similar feeling in the men themselves. As summer wore on and the "first fine frenzy" wore off, the dimensions of the sick parades were a less exact criterion of serious sickness. Though "scrimshanking" was always a despised rarity, men worn out with fatigues and debilitated by disease, disillusioned as to quick success, and seeing no prospect of respite from the hopeless monotony of discomfort and danger, were more willing to "go sick." They were stale as well as sick; rest for individual cases or the relief

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of units was the proper remedy and an urgent necessity. The refusal by G.H.Q., M.E.F., to permit the formation of a corps rest camp on Imbros had not been followed by effective arrangement elsewhere for the treatment and recuperation of light cases. But an effort was made on a small scale at the end of June to provide the formations with some rest. A camp was formed on Imbros, where, in circumstances that permitted—as a regimental medical officer put it—"a perfect holiday," battalions from Anzac and Helles were sent in turn for an average period of four days. By July 22nd, when this practice was stopped by the preparations for the offensive, a quarter of the Anzac troops had received such brief relief.

The difficulty and danger of forming "convalescent" or "rest" stations within the divisional areas, or of treating slight cases of sickness in field ambulances, appear to justify the attitude of the assistant-directors of medical services in their endeavour—to which reference was made in the previous chapter—to force development of these on the lines of communication. The failure, however, of G.H.Q., M.E.F., to provide adequate accommodation for slight cases, and the long delay in return to duty from the base, soon compelled retention of the sick on shore at Anzac in increasing numbers. Note has already been made[34] of the development of treatment in the tent divisions of field ambulances on shore at Anzac, and in particular of the "cholera station" which was formed in Rest Gully, but happily not required for that purpose. Treatment in battalion lines was strongly favoured by the combatant staff, and the A.D'sM.S. and R.M.O's responded. The risks of this procedure were recognised. Thus an R.M.O. reporting his treatment of diarrhœa to the A.D.M.S., 1st Australian Division, was concerned as to whether "the possibility of spreading disease by retaining cases may not outweigh the advantage of not disorganising the battalion by evacuating all cases."

Sick retained at front

The supply of drugs used in the treatment of "diarrhœa" (especially castor oil and epsom salts) had

[34] *See pp. 208 9.*

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from the first been inadequate, the extraordinary demand not having been foreseen. Under the circumtances above described it is hardly surprising that the supply at No. 4 Advanced Dépôt of Medical Stores at Anzac Cove occasionally fell seriously short of requirements. The supply of medical comforts also was at times unequal to the demand, and the voluntary activities of the Red Cross Society did not as yet extend to Anzac.

Sickness affects stores and accommodation

The increase of sickness naturally affected the adequacy of provision on the Lines of Communication. During June more and more transport and hospital accommodation on the Lines of Communication were required for the sick from both Anzac and Helles. The stationary hospitals on Lemnos expanded beyond their capacity. The difficulty experienced in May and June in respect of the return of slightly wounded men to duty was followed in July by similar trouble with the slightly sick. Investigation by General Headquarters of complaints against the stationary hospitals of unduly long retention, or of evacuation to the base of slight cases, showed many of the cases in question to have been, in fact, not slight but serious. Many slight cases of sickness, as of wounds, did, however, pass to the base: but defective provision for treatment of such on the lines of communication was a far more important cause of delay in return to the front than imperfect arrangements at the base.

As an incidental result of the increased employment of the tent divisions in the treatment of sick at Anzac, it was arranged early in July that the personnel of the 3rd Field Ambulance forming the improvised "divisional sanitary section" should be replaced by combatant "details" from each battalion. The medical non-commissioned officer who—within the limits of the sanitary system obtaining and of the circumstances—had brought into good control the difficult sanitary "No-Man's Land" entrusted to him was retained in charge. At the same time the obvious urgency of the situation brought the appointment in the 1st Australian Division of a "divisional sanitary officer." Though the keenness and good work of this officer and of the men who

Improvised "sanitary section"

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served in the unit received general recognition, this makeshift arrangement was a very imperfect substitute for a trained and equipped sanitary section such as worked at Helles.

Arrivals on eve of offensive

At this stage, when there was imminent at the Dardanelles the second great offensive which was to concentrate upon itself for many weeks the whole effort and attention of the force, some of the measures designed to meet the earlier defects began to materialise. At the end of July a bacteriological laboratory was established by the P.D.M.S. at East Mudros. On the 31st No. 3 Australian General Hospital arrived there; but the fine laboratory equipment, together with the great bulk of its general hospital equipment, was not sent on by the War Office for three weeks. On July 2nd the Medical Advisory Committee arrived in Egypt, and on the 30th the Professor of Hygiene at the R.A.M.C. College, London (Lieutenant-Colonel A. R. Aldridge) arrived at Imbros as "A.D.M.S., Sanitary" to the Mediterranean Expeditionary Force. By this time, however, the problem of disease prevention had been forced into the background by the preparations for the offensive.

Unfitness of Australians for the effort

It is important to examine the condition of these troops of the A.I.F. who were about to be flung into the now imminent operations, on which for four days hung the fate of more than the campaign, and in which they were to be subjected to a trial of endurance and stamina as formidable as any faced by Australian troops in the war. On July 21st the corps commander received reports from medical officers of the 1st Brigade, with which the brigade and divisional commanders officially concurred. These reports urged that the men, unless given a rest, were not fit for further sustained and heavy exertion. Sick parades of from sixty to eighty were instanced as pointing to staleness: "dyspepsia, weakness and trembling of legs, irritability and depression of spirit in men partly recovered from diarrhœa" were taken as signs of generally lowered physique. At a conference on the eve of the offensive the commander of the 4th Brigade asked his medical officers whether the men were fit for severe operations. Three of them thought that the majority were

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not, the fourth considered that, while they were unfit, any change from the present conditions would be welcome, and that the stimulus of active operations would call out reserve powers. This view, without doubt, reflected the situation. The men, though diseased and not fit, were capable of responding for a short time to a supreme stimulus.

On July 30th the A.D.M.S., 1st Australian Division, "felt it his duty" to report to his divisional commander that "the constant strain, small quantity of water, and climatic conditions," together with "a type of diarrhœa which is producing anaemia" had undermined vitality; he estimated thirty per cent to be unfit and the remainder "certainly not fresh, so that any prolonged strain will tell." He urged the addition of milk to the ration and a nightly issue of rum. It seems doubtful whether the condition of the troops at Anzac was appreciated at General Headquarters. The diary of the D.M.S., M.E.F., on August 1st records (under "sickness") "a good deal of diarrhœa amongst the Australians, possibly due to sea bathing."

On August 2nd, 3rd, and 4th, with well preserved secrecy and the skill that marked the staff work of the M.E.F., the 13th British Division and the 29th Indian Infantry Brigade were landed at Anzac and packed into dugouts and terraces specially dug in Shrapnel and Victoria Gullies. All units at Anzac had been brought up to strength.

Before entering on a description of the operations—which must be classed with the "decisive battles" of history—whose opening scene was set for August 6th, it is desirable to bring up to date the situation at the base.

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CHAPTER XIII

EGYPT DURING JUNE AND JULY

DURING the two months that preceded the second offensive the medical accommodation available in Egypt and Malta was exploited to the utmost. Moreover the provision of hospital ships was insufficient for the effective clearance overseas of invalids, and sick and wounded in all stages of convalescence accumulated at both the medical bases. For the A.I.F. Egypt became, indeed, a final rather than an intermediary medical base. The problems of accommodation, convalescence, and invaliding, early in evidence,[1] now became pressing. To meet the situation in the A.I.F., the British authorities in Egypt secured, through the D.M.S., A.I.F., the provision by Australia of two hospital ships and a large number of "special" reinforcements, who were used to effect a huge improvised "expansion" of one of the Australian hospitals. But, through the absence of an exact arrangement between the War Office and the Australian Defence Department regarding the medical care and disposal of Australian sick and wounded, to which reference has already been made, the situation in Egypt remained unsatisfactory. It was now further confused by the action of the British command in procuring the abrogation of the powers of self-government implied in the appointment of a D.M.S., A.I.F., and in substituting for him a junior officer as A.D.M.S. on the staff of the D.M.S. for Egypt. A drastic reconstruction to remedy these defects was in progress when the second offensive at Gallipoli supervened.

* * *

Reconstruction during pause

In Egypt the second week in June—the date to which events have already been followed—marked the beginning of a period of reconstruction and development. At Alexandria Nos. 15 and 17 British General Hospitals were now well established. During the month suitable buildings were found in Alexandria for Nos. 19 and 21, where they built up fine hospitals on normal military lines. With casualties arriving in Egypt regularly at the rate of no more than 2,200 per week, the pressure on accommodation was for a time lessened.

[1] *See pp. 90-2 and 202-3.*

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The medical problem of the campaign was now opening up as a whole, and the arrangements for the expedition were being organised on much broader lines. With the arrival of a Principal Director of Medical Services the medical activities in the Levant were brought under single co-ordinating control. Surgeon-General Babtie found "the acute situation (in Egypt) relieved," for the time, by the arrival of the two British hospitals and of the "special" reinforcements from Australia; and he decided that "clearance and co-ordination" were "the crux of the medical situation" and the prevention of disease the most pressing medical task. He inspected the Australian units and made important recommendations for co-ordinating their work and improving the system under which it was carried on. On June 22nd, with the D.M.S., M.E.F. (Surgeon-General Birrell), who had met him in Egypt, he left for the Dardanelles, chiefly to deal with the matters of evacuation by sea and prevention of disease.

Egypt and Malta inadequately cleared

In Egypt and Malta, the medical bases of the expedition, the most pressing concern at this time was the clearance of convalescents to England and Australia. An increase in the flow of casualties from the front into the hospital system of an overseas base may for a time be met, and an unstable equilibrium between admissions and bed-state be secured, by expansion or increase of the medical units. But ultimately the only way of stabilising the balance and maintaining the vital onward movement of casualties through the hospital and convalescent systems is by promoting outflow—by means of invaliding, or transfer for convalescence, overseas, and by discharge "to duty" and combatant control. The clearance of convalescents to England was greatly restricted by the shortage of hospital ships, coupled with the prohibition by the War Office of the use of "Black Ships"—which were, of course, liable to be torpedoed—for the purpose. In spite of the diversion to Egypt from the Dardanelles of all but two hospital ships,[2] during May only 1,961 cases were cleared from Egypt to England, and 287 to Australia. In June the new policy,[3] with its promise of twenty-seven hospital ships for

[2] *See pp. 177 and 219.* [3] *See p. 224.*

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sea-transport of sick and wounded, was inaugurated. The developments of the scheme were, however, necessarily slow, and the increase in facilities for sea-transport was quite inadequate for maintaining equilibrium in the Levant. Clearance in June from Egypt was, to England, only 1,760; 469 to Australia; a few hundreds to Cyprus. And, though the influx of wounded had lessened, a rapidly rising tide of sick had begun to flow in from the front—8,884 casualties were disembarked at Alexandria during June. Egypt filled up with chronic cases, with convalescents, and with men who had recovered and were awaiting disposal but were still in various degrees or stages of unfitness for front-line service.

At Malta 2,000 casualties arrived during the month, direct from the front.[4] By the middle of June all the hospitals on the island were congested, largely owing to the lack of facilities for clearance of invalids and of recovered men. In respect of the first, relief was obtained when there was made in Egypt, for invalids in Malta awaiting clearance, a reservation of one-third of the total accommodation on the home-going hospital ships, of which the requisite proportion were diverted thither. As regards recovered men, the congestion was in a great measure due to the fact that the island was only a subsidiary base for the Mediterranean Expeditionary Force. No base organisation was established there, and men who became "fit" in Malta were returned to duty indirectly—namely, *viâ* the M.E.F. Base at Alexandria. As their transfer thither was dependent on available shipping—which was very irregular—Malta acquired a bad reputation at the front for over-long retention of men "fit for duty." During the first two weeks of July 2,483 cases arrived in Malta, these also having been redirected thither from Egypt.

New crisis synchronises with difficulties in A.A.M.C.

The second week in July saw a new crisis arising in connection with preparations for the supreme effort of the campaign, and General Maxwell was compelled to inform the War Office that he already had 8,000 sick and wounded and did not see how he could clear them to receive the expected influx. Description of the

[4] The result of protests from the authorities at Malta against evacuation *viâ* Egypt.

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arrangements at the base in preparation for this offensive must for the present be deferred, and, the general situation having been thus broadly presented, the work of the Australian medical service may now be followed in some detail.

For the A.A.M.C in Egypt the beginning of June brought a crucial occasion. While the "expansion" of No. 1 Australian General Hospital had materially helped to meet the immediate crisis arising at the Landing, this expansion had not been correlated with any effective system for the ultimate disposal of Australian casualties; it was, moreover, of only an emergency character. Inspecting the Australian units on June 15th, the P.D.M.S. noted of No. 1 General Hospital:—

> This hospital is too big, its administration by amateur staff very difficult. Luna Park is not suitable for hospital purposes and is to be given up, or, failing that, made a separate institution.

The hospital had, indeed, become a system in itself rather than a unit. Apart from this, throughout the Australian army medical service overseas, problems of organisation and interior economy—promotion, posting, and discipline—were pressing. The situation in connection with medical supplies, motor transport, reinforcements and expansion of units at the front, and Red Cross matters, demanded that British and Australian administrators should co-operate in directing the development of the Australian service so as best to serve the Imperial purpose. Large "special" reinforcements, together with the new No. 3 Australian General Hospital (1,040 beds), were then approaching Egypt. All these matters called for decision and action by the D.M.S., A.I.F.

The holder of that position (Surgeon-General Williams) left England on June 3rd to return to Egypt. During some three weeks spent in England he had arranged for the disposal of Australian convalescents in that country and for a system of invaliding to Australia. At Malta, where he called on his way to Egypt, he found some 2,000 Australian sick and wounded, the majority convalescent, under treatment on which he reported favourably to the Defence Department in Australia. While there, he was informed, by a cable which reached him from London through the High Commissioner,

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that his services were not required in Egypt. This was the result of peculiar action by the Egyptian command. On June 5th a cable from Egypt to the War Office stated that there was "no appointment in Egypt for the D.M.S., A.I.F." and recommended that "he be returned to Australia." This message was forwarded to the Minister for Defence by the High Commissioner for Australia in London who prefaced it with the statement that it was "recommended by the Army Council," and the Minister acceded, except for instructing the High Commissioner that the D.M.S., A.I.F., should return to England

D.M.S., A.I.F., rejected by Egyptian command

> to perform under your sole direction duties in connection with Australian invalids in England and preparations in connection with Hospital Ships. He is not permitted to exercise any control over Australian medical units in England, on the Continent, or in Egypt, as this is to be entirely under Imperial authority.

The course of military procedure renders it certain that the message from Egypt on which this action was based was despatched upon the recommendation of the D.M.S. for the Force in Egypt (Surgeon-General Ford). The response made to it by the Australian Government—advised by the Defence Department through the Minister—was unexpected;[5] and the course now adopted was, at least in its immediate effects, unfortunate. It certainly had unforeseen and far-reaching consequences. General Williams (who, while D.M.S., A.I.F., was still also Director-General of the Medical Services of the Australian Military Forces), instead of being recalled and replaced by another director of medical services for the A.I.F. overseas, was reduced to an inferior executive position in England. The medical service of the A.I.F. was thus left without a head, and, in the matter of its interior economy and discipline, was subjected in Egypt to a control which was uninformed, uncertain, and ineffective. Though the right of the General Officer Commanding the British Force in Egypt

Unfortunate action by Australia

[5] General Maxwell, on 31 July, 1915, wrote to the Australian High Commissioner (Sir George Reid) regarding this incident—"Surgeon-General Williams, A.I.F., is suffering from the wording of a telegram of mine. . . . When I heard he was coming out I telegraphed that we had no place for him and I know that I suggested that he should go to Australia and arrange things there in connection with reception of sick and wounded and hospital ships, etc. I had plenty of surgeon-generals and did not want more . . . if there is any wrong impression deduced from my telegram I hope you at least will correct it."

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to procure the exclusion of any officer whose presence was undesired cannot be questioned, and, though Surgeon-General Williams had personal defects which made him uncongenial and "difficult," together with a status of which the significance was not appreciated, the necessity for this action is nevertheless difficult to understand. Apart from personal considerations, the root of the matter is probably to be found in the position of the Australian Imperial Force itself, whose status in the British Army was still nebulous. The ideal of an administrative *imperium in imperio,* which was later so effectively to promote imperial co-operation, as yet existed only as a germ in the "powers of the G.O.C., A.I.F.," which at this time to a great extent lay dormant in the "G.O.C. Anzac Corps." The position of a "D.M.S., A.I.F." was perhaps premature. It was not yet realised that independent internal administration by an Australian officer was compatible with complete control for service by a British.

While the immediate effects were without question deplorable, it is probable that—by rendering inevitable and almost automatic the supersession of a man far past his prime—this incident was to the ultimate benefit of the service.

General Williams arrived in Egypt from Malta on June 18th. At the request of the D.M.S. for the Force in Egypt he inspected the Australian hospitals, concerning which he furnished to the Commonwealth an uncritical and generally eulogistic report, taking however no action in connection with future developments. With his staff (a warrant officer and a corporal) he left for England on June 29th. His recommendation that the officer commanding No. 2 Australian General Hospital should "continue to act under" the D.M.S. for the Force in Egypt "for advisory purposes in matters of policy as S.M.O." was accepted. From this time onwards the D.M.S. for Egypt (General Ford) communicated with the Defence Department direct through the Australian Intermediate Base Dépôt in Cairo, and became responsible for the maintenance of the Australian medical service in the Levant as well as for the direction of its work in Egypt.

It is obvious that the internal affairs of the Australian medical service could not be even tentatively controlled by an

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external director without constant assistance and advice; and for this the D.M.S., Egypt, now turned, not to the "S.M.O.," but to the Australian officer on whom he already relied for much help of this nature. This was the registrar of No. 1 General Hospital (Major Barrett). The one apparent object of the action taken by the Egyptian command is seen in the attachment of this officer on June 13th to the staff of the D.M.S. for the Force in Egypt for "services in connection with the Australian medical service in addition to his other duties," and his appointment on the 21st as "A.D.M.S. for routine work in connection with the Australian Force in Egypt." Neither of these appointments was communicated to the G.O.C., A.I.F., nor to the Australian Government; nor were they promulgated in any general orders. The new "A.D.M.S., Australian Force," worked in close conjunction with the Commandant of the Australian Intermediate Base Dépôt (Colonel Sellheim) and to all intents filled the vacant position in the medical section of the A.I.B.D. He took over all the duties pertaining to an assistant-director of medical services in respect of the Australian force in Egypt, at the same time retaining his position as registrar and other appointments, including the control of the affairs of the Australian Red Cross Society.

D.M.S., Egypt, controls through new channel

The grave defects following or associated with the lack of firm capable direction of the Australian service at this juncture will be explained as this chapter proceeds. They had not escaped the notice of the P.D.M.S. (General Babtie). Australian troops in Egypt now included the 2nd Division (which arrived during June and July) and, with medical and other units, reinforcements, and accumulated convalescents, totalled some 30,000, concentrated chiefly in the Zeitoun area. The situation in the Cairo hospital-centre in regard to the clearance of convalescents and invalids and the administration of the Australian units had appeared to General Babtie to demand administrative assistance. Among the various special officers now being sent to the Levant for administrative and technical duties was Colonel C. C. Manifold of the Indian Medical Service, who, after a brief service in France, had been

Appointment of P M.O., Cairo

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selected as suitable for the position of Deputy-Director of Medical Services for the A. & N.Z. Army Corps. Arriving in Egypt in June, he was sent by the P.D.M.S. to Cairo to organise, under the D.M.S. for the Force in Egypt, the system of selection for invaliding by medical boards—the pivot of the system for disposal of casualties at the base—and to help in disentangling the situation which had arisen in the Australian medical service. These vague and difficult duties he took up on June 28th, with the designation of "Principal Medical Officer, Cairo."[6] A second officer was thus added to the improvised staff through which the D.M.S., Egypt, attempted to administer the A.A.M.C.

Hiatus between front and base

Through the absence of a definite head, however, at this critical juncture in the Gallipoli campaign, the Australian medical service underwent certain most untoward results. In the first place there was an unfortunate hiatus between the Australian organisation at the base and at the front, by which the front suffered. When in Egypt General Williams was desired by the D.M.S., M.E.F., and by the P.D.M.S. to visit the Australian line-of-communication units at Lemnos; but he was prevented from doing so by the terms of his instructions. The result was that the stationary hospitals, with no one to look after their interests, were left to "expand" without special reinforcements—short even of their normal quota.[7]

Problem of "Disposal"

The lack of a responsible head also increased the difficulty of solving a greater problem which came to a head during June and July—the problem of disposal, by invaliding or by return to duty, of men discharged from hospital. Like other problems facing the A.A.M.C. at this time, it was met at first by hasty improvisation, which was followed but slowly by

[6] The staff under Surgeon-General Ford at this time consisted of a D.D.M.S., Canal Zone, an A.D.M.S. at Alexandria, and two D.A.D'sM.S. (one sanitary). The position of P.M.O. (Principal Medical Officer), like that of S.M.O., was not official, and gave no defined status.

[7] During his stay in Egypt Surgeon-General Williams received from the D.M.S., M.E.F., and forwarded to Australia a list of "Red Cross," medical, and surgical stores considered sufficient for 30,000 men ("to be supplied if possible"). The magnitude and vagueness of the demand made action in Australia impossible, and the fact that the articles enumerated under "Red Cross" included many that came within the scope of ordinary military supplies increased the confusion existing there as to the position of the voluntary organisations, and well illustrates the unsatisfactory situation that obtained in this respect.

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reorganisation and development on more permanent lines;[8] and largely in consequence of the inadequacy of the improvised measures—though partly also because of the greater distance from Australia—Egypt, and in particular Cairo, became for a time not an expeditionary but a final base for the A.I.F. Convalescence was completed and treatment finalised there. The procedure for the return of recovered men to the front was indirect and circuitous and consequently convalescents, invalids, and "unfits" accumulated, choking up the hospital and convalescent systems and necessitating indefinite "expansion" of the medical accommodation at the seat of war.[9]

By the end of June there had reached Egypt from the front some 11,000 sick and wounded Australians, the ultimate disposal of whom it is necessary now to follow.

Invaliding—General Williams secures two hospital ships

The policy and procedure in regard to the transfer home (or to some other base overseas) of Australian sick and wounded who would be permanently or for a considerable time unfit for duty, and who in the meantime required special treatment on various lines, had drifted into an unsatisfactory situation. Though transfer to England was opposed by the Australian Defence Department, it was not till the end of May that, in response to a cable through the D.M.S., A.I.F., which brooked no further demur,[10] approval was given for two Australian hospital ships. These could not be ready till September. In July the Defence Department agreed—the decision to be "looked on as final"—to adopt, for the return of invalids to Australia, the system recommended in February by the D.M.S., A.I.F., namely, that of working two hospital ships in conjunction with "better class transports fitted out." In the meantime the view of the War Office

[8] The situation during 1915 in this respect reflected in some measure the immaturity of the base organisation of the A.I.F. at this time. But it reflected also (and specially) the imperfect nature of the understanding that had been reached between Great Britain and the Dominions as to the place of the dominion forces in the British army system. The unserviceable relations that existed between the Defence Department of Australia and the British military authorities at the War Office and in Egypt, and their defective co-operation, were a consequence of this.

[9] Moreover Australian reinforcements, who would normally be fully trained at the home base and would proceed thence to the front, arrived in Egypt only partly trained, their training being completed, and the troops prepared for inclusion in "drafts" for the front, at Zeitoun, under the Egyptian command. This arrangement for recruits greatly increased the number of Australians in Egypt.

[10] "The C.-in-C. and D.M.S. in Egypt require this."

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that serious cases should not pass through the Red Sea during monsoons except in hospital ships brought about an accumulation in Egypt of large numbers of convalescent cases and of unfits awaiting invaliding. The arrival of the *Kyarra* —now employed merely as a troopship—at the end of May gave opportunity for despatch to Australia of 269 invalids—49 of whom had been wounded—and of 54 men sent home for "change," together with a quota of "venereals." The selection was hastily made by specially appointed medical boards. Early in June an Australian "medical embarkation officer" was appointed, and during the month many transports were inspected by him at Alexandria, but none of those available for invaliding to Australia were found suitable. Opportunely, however, for the serious congestion in the convalescent hospitals and the dépôts, the troopship *Ballarat* on July 5th took 386 invalids—266 wounded and 120 sick—besides 68 for "change to Australia" and 131 venereals.

This shortage in transport facilities made the selection of the cases most suitable for transfer to Australia a matter of no little importance. Until in May the first wounded from the front arrived in Egypt, the only alternatives for disposal on discharge from hospital had continued to be "discharge to duty" or return to Australia for discharge from the army as "unfit for service." With the wounded came the need for clearing the Australian hospital and convalescent system; and this was the more pressing from the fact that for convalescence in summer the conditions in Egypt were far from good. Medical boards accordingly began to recommend a third method of disposal—that of transferring Australians to Australia or to England, not for discharge but for "convalescence" or "change."[11]

Summary of problem

To summarise, it will be seen that the problem of clearing Egypt of unfit Australians—sick and wounded—and the task of the medical boards were at first greatly complicated by conflicting factors in the situation. While the Government of the Commonwealth of Australia strongly desired that evacuation of

[11] "Army Form B179," the official board-paper for a British expeditionary force, presented as alternative "board findings":—

(*a*) Discharge as permanently unfit.

(*b*) Change to England.

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Australians to England should be restricted, there was great shortage of suitable means of transport to Australia; and the British authorities held strong views as to the transfer of really sick men through the Red Sea in summer save in well-equipped hospital ships. The confusion resulting from these causes was the more confounded through the absence at this time of any principles that might guide the boarding officers in selecting for disposal—except that all venereals were to be got rid of to Australia. It was, indeed, in the matter of invaliding that the A.D.M.S., Australian Force, found his most difficult task. On July 17th the P.M.O., Cairo, was appointed by Surgeon-General Ford "Staff Officer for Invaliding and Evacuation"; he was associated with the A.D.M.S., Australian Force, as "reviewing officer" in connection with the boarding of Australian invalids; and was at the same time charged with more exact and definite responsibility in connection with the Australian medical service in Egypt.[12]

Developments in the boarding system

The "medical board" is the pivot of every system for the invaliding and ultimate disposal of casualties. In Egypt its only function at this time was that of selecting, from cases sent before it by the medical officers in charge of hospital beds, those men whom they considered suitable for transfer overseas. It had not yet begun to take a part in the reverse operation—namely, that concerned with "return to duty." The obvious difficulties now encountered in selecting men for invaliding led to a change in the procedure. On the occasion of the first invaliding of wounded to Australia (that by the *Kyarra* in May) much difficulty was found both in selecting from the accumulated "board papers" the most suitable cases and also in subsequently assembling for embarkation those selected —men who were all in process of movement through the convalescent system, or might even have been absorbed into light "base duties." To obviate this difficulty, at the end of June permanent medical boards were appointed in each of the general hospitals. Added to these was a "travelling

[12] Exceptional tact and assiduity enabled Colonel Manifold, in spite of his anomalous status, to exercise considerable influence on the working of the Australian hospitals.

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medical board," of which the duty was to re-select, from cases boarded by the former, those best suited for the accommodation actually available in such transports as should present themselves. The "junior Australian officers" in charge of hospital beds were given instructions, by the P.M.O., Cairo, in the principles that should guide them in selecting cases to go before a medical board. During July the P.M.O. was very fully occupied in the endeavour to bring order from a muddle which was in some degree inherent in the situation, but which was accentuated by the uncertainties of a policy wherein—as it was put by an officer who had intimate experience of its working—"nothing ever lasted long."[13] A shipload of invalids selected under this system left for Australia on July 29th in the transport *Hororata*, which carried 222 sick and wounded invalids for discharge and 266 for "change", making a total of 1,006 invalided and 392 convalescents returned "for change" to Australia since the Landing. During the same period some 1,500 Australians, sick and wounded, had been sent to England.

System for "return to duty"

The alternative to invaliding is "discharge to duty." In no department of military procedure is the evolution that took place during the war of greater interest to the medical service than in the return of the recovered casualty, since the improvements, which amounted almost to a revolution, in the system were in a very large measure made possible by increasing the part allotted to the medical service.

In the army, the stage of convalescence, a necessary prelude to "return to duty," calls partly for a combatant and partly for a medical responsibility. It is a weak spot in the machinery that controls the onward movement of the casualty through the military medical system. The soldier is transferred back from the protecting wing of the Geneva

[13] "There appeared" (to quote again from this source) "to be few guiding principles as to the class of man who should be invalided, and these were liable at any moment to entire revision." Both the Australian reviewing officers, it would seem, adopted a somewhat hypercritical attitude towards the findings of the medical boards in respect of eligibility for transfer overseas. In that connection the A.D.M.S., Australian Force, found that "it was almost impossible to get them (the boards) to reverse" their opinions when once expressed; meanwhile the P.M.O., Cairo, found his views often at variance with those of the medical officers in British units. It is probable that the standard of fitness necessary for effective service in the field was in general underestimated by administrative officers at the base, as it was in Australia in the case of recruits.

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Convention to the hard world of training and fighting: military and medical control meet again, and, as elsewhere in army administration, the junction is apt to be imperfect, and sometimes leaky. Here is to be found one of those military domains in which overlapping of medical and combatant responsibility may be much in evidence: during the first part of the war it was a peculiar "No-Man's Land," wherein command might be at one time medical and at another combatant, or where the administration might be combatant while the effective control was medical.[14]

The system of "medical" convalescence in Egypt for Australian casualties was at this time comprised in the three "auxiliary convalescent dépôts" developed from No. 1 General Hospital; "Mena House," from No. 2; and the convalescent homes (or dépôts) at Helouan and Ras-el-Tin. Further reference to these will appear later. On the combatant side of the joint was the base details camp of the A. & N.Z. Training Dépôt at Zeitoun, to which went all Australian convalescents discharged "to duty." This was a hybrid of quite unique character, which, though not under the Geneva Convention, at times combined in itself the functions of a convalescent dépôt, as laid down in "War Establishments," with those of a military "overseas base dépôt." Here, besides convalescents and recovered, were held large numbers of men who had been "boarded" for return to Australia.

New category—"light duty"

From an early date also a considerable number were discharged to duty who, though for various reasons not fit to return to the fighting line, were not totally disabled. In May the attention of the D.M.S. for the Force in Egypt was drawn to these by the officer commanding No. 1 General Hospital (Lieutenant-Colonel W. Ramsay Smith), with the suggestion that discharge from the hospital should be endorsed in such cases "fit for base duty but not fit for duty at the front." Such an order was in fact issued early in June, convalescents being classed "fit for light duty" and

[14] At the Australian convalescent dépôts or homes at Ras-el-Tin and Helouan the commanding officer was combatant, the directing officer medical. At the British convalescent dépôt at Mustapha (Alexandria) the medical officer who at first commanded was later replaced by a combatant—the supersession causing considerable resentment. Great confusion existed also in the designation of units or establishments included within the term "convalescent." Convalescent "dépôt," "hospital," "camp," and "home" were often used indiscriminately.

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"fit for light duty in Egypt," and many men so classed were used for hospital work, though as yet on no very definite system. Many men also of those wounded in the first fighting, when convalescent, though "fit for duty" at the front, were absorbed into the organisation of the training dépôt (for which no personnel had been provided), recovered men rather than reinforcements being retained for these duties. It thus came about that, even in cases where disablement was not severe, not a few remained at the base, while in other cases a considerable time elapsed before they were included, with reinforcements in one of the drafts for the front which were sent to Alexandria in response to demands from field units through the adjutant-general's office at the base. The administrative separation of the A.I.F. in Egypt from the M.E.F. Base was accountable for some delay in return to duty: the system was indirect, convalescents and reinforcements being held in a command outside the expeditionary force, whose administrative department was out of touch with, and unable to influence, the supply. For the A.I.F. (as has been already noted), Egypt to a great extent functioned as a home base.

A contributing cause in the delay may in some cases have been the difficulty, which at times was considerable, in obtaining Australian uniforms. The most important factor, however, was the fact that it was not yet recognised that an exact system of preparation and medical supervision was necessary to ensure the prompt return of all fit cases and the retention of unfits. The later stages of the war saw the system developed to a fine art, return being made gradual yet rapid, smooth but inevitable.

It was thus that arose the grievances to which reference has been made in connection with return to duty at Anzac.

The complaints from the front

Keen men who got away brought to the front reports of administrative disorganisation at the base; others, absorbed into training establishments or hospital staffs against their will, wrote to their units asking that their own return should be demanded. But while there is no doubt that the working of the training dépôt was at first defective and its organisation rudimentary, it is far from clear that delay in return

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to duty was excessive in any large number of really fit cases. The mere passage through the complicated system of a base, even at its best, was a matter of months. The root of the trouble is to be looked for rather in the non-retention of light cases nearer to the front. The conditions in the A. & N.Z. Training Dépôt gradually improved, and drafting became more exact, but the system remained unchanged till the increasing demand for "effectives" brought, as in all the national armies, the necessity for more exact procedure. The developments in this respect will appear later.

Provision for convalescents inadequate

On the "medical" side, as on the combatant, convalescence in Egypt was at this time lacking in refinements of organised procedure which afterwards added greatly to efficiency. In "medical" convalescence in the auxiliaries and homes deficiencies related chiefly to special forms of treatment and the provision of special amenities that might add to comfort and relieve tedium. While the official preparations, improvised and imperfect, for receiving the first wounded provided all the essentials for recovery, they did not permit of a high standard of ministration by the medical and nursing staffs; and, though "Red Cross" funds were freely expended and voluntary help generously given, doubtless much was then lacking to the Australian convalescent in the way of accommodation, of medical and nursing attention, of feeding, bathing, recreation, and so forth.[15] No furlough was granted, and though, from the auxiliaries, occasional leave for the day could be obtained, the privilege was for some time rendered nugatory by lack of suitable clothing.

There is no evidence that—as was thought at the front—casualties were detained too long in the medical units; indeed, the reverse was more often the case, and what may be called the emergency exit in case of a rush—namely, discharge direct to the base details camp—was used to such an extent that this formation came to be looked upon as a true convalescent dépôt. As auxiliaries and convalescent homes filled up, medical officers discharged direct from them to "base

[15] The useful work done in Cairo and Alexandria by the Y.M.C.A. and other voluntary organisations, in which convalescents participated in some degree with the rest of the troops in Egypt, is referred to in *pp. 422, 486n.*

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details" any patients who could look after themselves. The masses of men in the auxiliaries made discrimination difficult. Matters in this respect came to a crisis with the rush of the second week in June, when complaint was made from the training battalions at Zeitoun that men came from the hospitals without proper clothing (sometimes in pyjamas) and without documents. The training dépôt asked

> if these men who are discharged from hospital are supposed to be fit for duty to proceed with reinforcements to the M.E.F. There is scarcely a man among them fit for even the slightest duty about camp; many have open wounds still; they are a nuisance in camp, as they do no work and demoralise others.

Non-clearance of convalescents—No. 1 A.G.H. again expands

On June 27th, at the request of G.O.C., A. & N.Z. Training Dépôt, the D.M.S. for the Force in Egypt instructed that "this so-called convalescent camp" should be closed; that the only cases discharged to Zeitoun should be "recovered men, to be classed 'fit for duty' or 'light duty,'" and that all invalids awaiting invaliding to Australia should be held at the convalescent home at Helouan, "the only place where patients no longer requiring hospital treatment are to be sent." But the trouble was not a mere matter of administration. From lack of clearance overseas the medical convalescent system was choked up. On June 15th 130 convalescents who had been sent to the Australian convalescent home at "Al Hayat" (Helouan) were refused admission—the place being full of invalids—and were sent back to the hospitals. Increased accommodation was sought by still further expansion of No. 1 Australian General Hospital. On July 8th the P.M.O., Cairo, at the request of the A.D.M.S., Australian Force, inspected the Grand Hotel at Helouan, and this was taken over and staffed from the A.A.M.C. reinforcement and reserve "pool" at No. 1 General Hospital, and was used for a time as an additional home for convalescents. Ras-el-Tin convalescent home, opened on July 5th for 200, was staffed from the "pool," and expanded gradually for 500. The Australian convalescent home (or dépôt) at "Al Hayat," Helouan, was developed to 1,000 beds.

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Accommodation for coming offensive

The other main problem of these months—that of receiving and treating the casualties from Gallipoli and, *pari passu*, ensuring readiness to meet the emergencies of an impending offensive—was also adversely affected by the circumstances under which the Australian medical service was then administered. The development of the Australian hospital service in Cairo was still entirely in the direction of extending the "auxiliary" and "convalescent" accommodation connected with the one hospital; this was in marked contrast with the British policy of establishing at the M.E.F. Base a balanced system of normal military units, each of which expanded on emergency. Thus, when the P.M.O., Cairo (Colonel Manifold), investigated, at the request of General Babtie, the Australian hospital situation in Cairo, he found it a confused one.

No. 1 A.G.H. and auxiliaries

At No. 1 General Hospital in the Heliopolis Palace Hotel the accommodation in the "Palace" itself (800 beds) was reserved for serious cases, this arrangement being effected by a system of rapid transfer, under which all light cases were passed on to the auxiliaries immediately on admission, and the more serious cases from the wards as soon as they were partly convalescent. The number of cases appearing in the "A. & D." books,[16] of this unit was thus very large. By the allotment of junior assistants, the ophthalmic and aural department developed into an important special clinic. During June ambulance trains took to Cairo a total of 3,582 casualties, of which 2,862 went to No. 1 Australian General Hospital and to its "auxiliary convalescent dépôts."[17] The fittings and equipment of the latter and of the convalescent home at Helouan had been slowly improved, and, with the increased staff, ministrations were more effective. Thus in No. 1 Auxiliary (Luna Park), where hitherto no provision had existed for messing, a fine dining-hall for patients was made by draining an artificial lake, and a suitably equipped

[16] Admission and Discharge books—the fundamental administrative (and, at the time, statistical) record kept in all Medical Units. This will be described in *Vol. II.*

[17] Called till Sept. 6 "Australian auxiliary convalescent dépôts"; after that date, "Australian auxiliary hospitals."

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kitchen was installed. To meet a considerable demand for minor—and some major—surgery, a small operating-room was improvised. Nevertheless the general conditions in the auxiliaries were still very rough. On July 12th "the sanitary arrangements over the distribution of food and general cleanliness and kitchen arrangements" were found by the P.M.O., Cairo, to be "deplorable." Notwithstanding these shortcomings, cases did very well indeed in the auxiliaries, which, however, remained secondary in function and in general suited only for dealing with minor cases and convalescents.[18]

No. 2 A.G.H.

No. 2 General Hospital in Ghezireh Hotel—which the P.D.M.S. found "very unsatisfactory"—was without auxiliaries, but built up very good medical and surgical departments; the clinical records of this unit were kept in a manner unsurpassed by any Australian hospital during the war. The cases arriving from the front, however, were, at this time, unevenly distributed. During July there arrived at Alexandria from Gallipoli in all 6,979 casualties, sick and wounded, of whom 2,769 reached Cairo. Of these no less than 2,100 passed through the books of No. 1 Australian General Hospital. In July No. 2 Australian General Hospital received 642 patients and was "never more than half-full." Only two deaths occurred among these: the proportion of serious cases which after May reached Cairo was very small. An Australian nurse returning to Ghezireh from Alexandria, where since April she had served at No. 17 British General Hospital, records that she

> was struck by the unlimited space and staff and the fact that the less serious patients went to Cairo, where the staff, etc., were most plentiful. The work at Ghezireh was slight compared with what we had known.

[18] The system—adopted in the case of No. 1 Australian General Hospital—of providing the extended accommodation required in the "expansion" of a general hospital at the base by creating affiliated "auxiliary hospitals" suited for treating an overflow of light cases and the partly recovered was a recognised method of meeting such an emergency. The system was adopted in Great Britain by the War Office to deal with the unprecedented situation that arose at the beginning of 1915 (*see p. 493n*), and was commended to the Governor of Malta, Lord Methuen, before the Landing, by the D.G.A.M.S. at the War Office. For the Australian hospitals in Egypt it was convenient in the circumstances, and, as a temporary measure, probably made inevitable by the fact that the greater proportion of light casualties arriving from Anzac were sent to Cairo, and comparatively few serious cases.

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On June 16th the *Mooltan* arrived from Australia with "special medical reinforcements," 28 officers, 38 nurses, and 195 other ranks. These were taken on the strength of No. 1 General Hospital, which had now a staff available for duty of 54 officers, 171 nurses, and 463 others. The sudden accession of so large a number without organisation into which to fit them increased the existing confusion. On July 19th more "special" medical reinforcements arrived from Australia—20 officers, 79 nurses, and 230 others. These also were absorbed into No. 1 General Hospital, where on July 22nd there were available for duty no less than 73 medical officers, 226 nurses, and 555 other ranks. The patients for whom this staff was responsible numbered on July 28th only 1,692. On that day twenty officers at this hospital were on non-medical work or were unallotted. With the backing of the P.D.M.S., the A.D.M.S., 1st Australian Division (Colonel Howse), who was then in Cairo, obtained a quota from these for the field units. The expansion of the stationary hospitals was not, however, provided for, nor were additional medical units in reinforcement asked for from Australia.

System centralising on No. 1 A.G.H.

By mid-July the new convalescent dépôts at Helouan and Alexandria had been formed, and No. 1 Australian General Hospital had become the dominant feature in the medical situation at Cairo. Controlled by this unit, or associated with its administration—through the fact that its registrar was also the "A.D.M.S., Australian Force," and in effect also the medical officer to the medical section of the Australian Intermediate Base Dépôt—were the Heliopolis Palace and its three "auxiliary convalescent hospitals"; the three convalescent homes; two nursing homes; the venereal hospital, Abbassia; the A.A.M.C. reinforcement dépôt; the base dépôt of medical stores; the ambulance motor transport; and the Australian Red Cross Dépôt and funds.

The second week in July opened for the medical service at the base as at the front a new phase of the campaign, namely, preparations for the great offensive. On the military

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side these were already well advanced. On the medical, the situation as regards the disposal of casualties at the expeditionary bases was very different from that at the time of the Landing. There was now in the Levant or arriving a force of some 200,000 men. A stream of casualties, which during June and July averaged 265 daily and was increasing every week with the rapidly rising sick-rate, was reaching Egypt and some 100 daily were going to Malta; local resources in respect of accommodation had been heavily drawn upon.

Preparations for offensive begin

Instead of the D.M.S. for the Force in Egypt (General Ford), the P.D.M.S. (General Babtie) was now responsible for co-ordinating arrangements for disposal at the expeditionary bases with those for clearance and evacuation at the front and on the lines of communication. Returning to Egypt from a tour of the Dardanelles, this officer at once began preparations.

The general medical arrangements at the base for the great offensive are considered in the following chapter, in connection with the tactical preparations at the front, but it is desirable here briefly to refer to some of them. The Principal Director of Medical Services exercised considerable influence on local developments, in particular those concerning the M.E.F. base hospitals at Alexandria; he also directed the distribution of the new personnel sent out from England for the operations. At his instance the G.O.C., Force in Egypt (General Maxwell), cabled to the War Office for increased facilities for evacuation to England and obtained special permission to clear by "home-going liners,"[19] The civilian hospitals in Egypt had by now been exploited to the utmost. No new British hospitals were sent to Egypt; those at Alexandria "expanded" by temporary erections and tents up to 1,500 and 2,000 beds, and for these additional personnel arrived on the eve of the operations. On July 24th the Principal Hospital Transport Officer ("P.H.T.O."), Surgeon-General Sir James Porter, arrived at Alexandria and conferred with the Principal Director of Medical Services.

Preliminaries

[19] Passenger ships from India and Australia, which maintained at this time a fairly regular service.

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In the Cairo area arrangements were made for No. 2 New Zealand Stationary Hospital[20] (now on its way) to take over the fine Egyptian Army hospital at Abbassia, and for the establishment of a Canadian stationary hospital. At the end of the month Mena House was again taken over by No. 2 Australian General Hospital. The preparations at No. 1 Australian General Hospital during July were confined to endeavours by the P.M.O., Cairo, and the A.D.M.S., Australian Force, to improve the conditions in the auxiliaries: the former found, and reported to the D.M.S. for the Force in Egypt, that "Australian Auxiliaries are reputed to hold many more than they will actually take."

Australian motor transport

In the provision for the reception of the anticipated casualties the Australian motor ambulance transport in Egypt played a useful part. This transport had by now increased to some sixty cars, and, under no exact system of organisation or control, were serving almost the entire medical needs of Egypt. Through the Australian Red Cross another twenty were being obtained, and General Ford cabled to Australia that more would be acceptable. To this the acting D.G.M.S. (Colonel Fetherston) replied that the supply of chassis in Australia had been exhausted. General Babtie asked the War Office to supply fifty, reliance having hitherto been placed entirely on the vehicles provided by voluntary gift in Australia and New Zealand.

Store depot

Vigorous action was also taken by the provisional Australian Base Dépôt of Medical Stores[21] which was by now serving all Australian medical units in Egypt and a military population which—including the recently arrived 2nd Australian Division—totalled some 30,000. Its medical supplies were usually obtained from the British base dépôts or by local purchase, or from Australia, whence they were brought to Egypt in the transports as surplus stores and collected thence with great difficulty and much loss—or from England. In July the dépôt was moved to a large warehouse, all Australian units in Cairo were ordered to draw

[20] No. 1 was established at Port Said at the beginning of July and was now accommodating 500 patients.

[21] With staff of one officer, one N.C.O., and five others.

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exclusively from it, and requests were made through the D.M.S. for the Force in Egypt to the Australian High Commissioner for its establishment as an independent unit. At the same time, in consequence of the increasing demands and the expectation of heavy casualties, a request was cabled for "stores for three months for twelve hospitals and convalescent dépôts . . . also regimental medical services, approximately 8,000 sick at any one time." A few days afterwards, in view of the rapid movement of events and a shortage of supplies which threatened "a famine in drugs," an immense[22] order was sent to London for "drugs, dressings, instruments, etc., required by the Australian line-of-communication units during the next six months," the quantities being based chiefly on "experience . . . during the last four months."

General Babtie's criticism

The preparations in No. 1 General Hospital were adversely affected by the extraordinary situation which had developed in connection with this unit. Administratively it had become unmanageable. Not only so, but the conditions under which treatment and ministrations were carried out were such as seriously to dissatisfy the P.D.M.S. In deference to his views the D.M.S. for the Force in Egypt decided to decentralize by making the auxiliaries independent commands. An "establishment" for these, based on the capacity of the buildings occupied, was drawn up by the A.D.M.S., Australian Force, and P.M.O., Cairo, for submission to the Department of Defence. The question of establishments was, however, deferred in view of the expected visit of the acting D.G.M.S. (Colonel Fetherston) from Australia. The whole question of the nature, extent, and maintenance of the Australian medical contribution to the British war effort was at this time under discussion in Australia, where also the condition of the wounded from the Dardanelles and the circumstances of the Australian medical service in Egypt

[22] The detailed list that followed involved in the one order over £30,000 worth of drugs (including, for example, 2 lb. of cocaine, 4 of eucaine hydrochlor, 3,500 lb. of chloroform, 20,000 of absorbent wool, and almost 1,000,000 pills and tablets). As was reported to the High Commissioner by his medical staff officer, it could "be described by one word only—colossal." The order was filled gradually through private firms and the War Office: but it was a bad "piece of staff work," and the defective co-operation that was to blame was due to defects in the policy guiding intra-imperial relations rather than to lack of foresight in the medical staff.

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were causing profound concern. The Minister for Defence (Senator Pearce) had decided to send the acting D.G.M.S. to Europe, "as it is impossible to understand the situation."[23]

The breaking up of this pseudo-military organisation would entail the loss of all military structure, and the problem of the administration and control of the constituent parts became pressing. The D.M.S. for the Force in Egypt suggested their control by the "S.M.O.," A.I.F. in Egypt (Colonel Martin, of No. 2 General Hospital) as "Inspector." To this the A.D.M.S., Australian Force (Lieutenant-Colonel Barrett), objected. On such a question the mind of the civilian organiser naturally turned to a hospital committee, and for the administration of the new units, and for settling the difficulties in the administration of the Australian medical service, he suggested a "committee," to consist of the P.M.O., Cairo (Colonel Manifold), the S.M.O., A.I.F. in Egypt, and "another A.A.M.C. officer," with himself as executive officer. The idea did not commend itself to the military mind of the Commandant, Australian Intermediate Base Dépôt (Colonel Sellheim), or the P.M.O., Cairo, and the proposal was dropped.

New control suggested

Amid these circumstances, and unfortunately at a critical time, the question of orderly direction of the Australian medical service was brought to a head. The weakness of the system of control through subordinates which followed the discarding of the D.M.S., A.I.F., had become apparent almost as soon as it had been set up. In spite of General Williams' dignified warning, to which reference has been made in an earlier chapter,[24] the differences between the officer commanding No. 1 General Hospital and his principal matron had continued. Both these officers were persons of great determination, and neither, it would seem, fully understood the military discipline of command and obedience. The

Internal crisis in A.A.M.C.

[23] The official object of his visit of inspection was to inquire into the Australian army medical service and arrangements for the transport of sick and wounded Australian soldiers in Egypt and the M.E.F., and to report to Defence concerning them.

[24] *See note on p. 67.*

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principal matron had been Lady Superintendent of the Melbourne Hospital and was

> a lady of proved administrative ability and great experience in the control and training of nurses. The choosing of a nursing staff for No. 1 A.G.H. was left largely in her hands, and she at once laid down the principle that the value of a nurse on active service depended, even more than upon professional training and capabilities, on character and mental and moral balance.

Unable to obtain that control of her nursing staff which she considered essential, she appealed to the D.M.S. for the Force in Egypt, who, to shelve decision, created an appointment of "Matron Inspectress" of the No. 1 A.G.H. group of hospitals. To this he appointed her on June 25th, with residence outside the hospital.

In the meantime internal dissensions among officers had been working up to a crisis which was to leave its mark on the history of the Australian service. The organisation of the A.A.M.C., A.I.F., as a service had been destroyed, and no substitute provided: administration by the D.M.S. for the Force in Egypt was lacking in firmness and decision. From this conjunction was begotten an evil offspring of indiscipline, both of command and of service.

Circumstances of a personal kind had results which under proper conditions of work and of administrative control could not have arisen. The commanding officer of No. 1 Australian General Hospital was a man of great ability and energy, but harsh and unconciliatory in his method of command, and uncompromisingly unwilling to stoop to the exercise of tact in the enforcement of military discipline on his officers. Restrictions, not unreasonable in themselves, became through the manner of their enforcement irritating grievances. Discontent at the unmilitary and irregular situation in the Australian medical service in Egypt, and dissatisfaction with the quality of medical and nursing ministrations permitted by the conditions in the Australian auxiliary and convalescent hospitals, became associated with a growing exasperation at the retention by the "A.D.M.S., Australian Force" (an officer without any previous military experience), of a multiplicity of other appointments of most varied and

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important kinds. Indefatigable and endowed with vision, organising ability, and an enormous capacity for hard work, this officer had played an important part in a grave crisis, and the D.M.S. for the Force in Egypt, who disliked making difficult decisions for himself, permitted a most improper multiplication of his responsibilities. The appointments held by him at the end of July, in addition to his positions as Assistant-Director of Medical Services for the Australian Force in Egypt—and (in effect) officer to the medical section of the A.I.B.D.—included those of registrar to the huge hospital system controlled by No. 1 A.G.H., executive officer for the Australian Red Cross Society abroad, ophthalmologist and aurist to No. 1 General Hospital and consulting ophthalmologist to the British Force in Egypt. For most of these he was well qualified, but response to so many and so varied demands could not be fully effective—reaction to a multiplicity of stimuli is apt to result in fibrillation. His commanding officer had protested strongly against his being taken from his duties as registrar to carry out the executive work of A.D.M.S. and of "embarking officer." The P.M.O., Cairo, on his first visit to the hospital, saw the justice of this protest, and at his instance an officer was detailed to "assist" and be "trained for the position" of registrar—this being made the easier by a very efficient and well-organised office staff. He urged also on the D.M.S. for the Force in Egypt that it was improper for the A.D.M.S. to retain the position of ophthalmic specialist, and recommended a suitable substitute. Many Australian officers who were content to do their own work saw with apprehension that it was impossible for one man to fill with propriety such a multiplicity of positions. At the same time his necessarily close association with the commanding officer—whom he very loyally supported—and his meteoric rise to a position which gave him a power over the Australian medical service which had been denied to its Director of Medical Services, caused resentment in others, who in a properly organised and disciplined service would have attended, or been required to attend, to their own affairs.

Position of Lieutenant-Colonel Barrett

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The members of the Australian Army Nursing Service were also in difficulty, and from much the same causes.

Nursing service affected

No Australian matron-in-chief had been appointed, and at the same time the nursing service with the A.I.F. had not been placed under the British "Queen Alexandra's Imperial Military Nursing Service." With the passing of the D.M.S., A.I.F. (General Williams), the nursing service was left without effective control or resort. On July 9th the "Matron Inspectress" of the No. 1 General Hospital group (Matron J. Bell) submitted to the commanding officer her recommendations with regard to its staffing. These were rejected by him. Receiving no support from the D.M.S. for the Force in Egypt (who had created the post as a "placebo"), and feeling her position impossible—as in fact, under the circumstances and with her temperament, it was—she requested to be put on transport duty or returned to Australia.

The quality of service rendered by the nursing staff, it is right to say, was unaffected by vagaries of administration or lack of facilities. As stated by an officer of No. 1 General Hospital:—

> The outstanding feature of the work of the nursing staff through all the vicissitudes of the administration was their devotion to their duty. They made it plain that they were there to nurse and care for the sick men, and that duty they were going to perform in spite, if necessary, of rules and regulations and military procedure.

The fact that the mischief lay in the unmilitary and confused situation which had been allowed by the D.M.S. for the Force in Egypt to develop—and which in particular was due to the rejection of the officer appointed by the Australian Government to control the interior economy of the medical service—was not recognised by the British administration either in Egypt or at the War Office; the trouble (of which accounts had reached both the War Office and Australia) was attributed to personal indiscipline alone.

War Office advises an inquiry

On July 7th the War Office cabled to Australia recommending that an inquiry should be held as to the administration of No. 1 General Hospital. Letters had been permitted to appear in the Australian press criticising the conditions under which Australian sick and wounded were treated in Egypt

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and seriously impugning the conduct of the commanding officer and registrar of that hospital. The Australian Government requested through the Secretary of State that the War Office should arrange the "inquiry." The matter was in this position at the end of July. The second week in August saw the breaking up of the organisation erected round this hospital and a drastic reconstruction of its command and administration. This was coincident with the launching of the supreme effort of the campaign.

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CHAPTER XIV

THE SUPREME EFFORT: SARI BAIR

In the great offensive of August, although the arrangements made for the evacuation of the wounded were far more complete than at the Landing, and the scheme of the D.M.S. promised better, and was improved by the last-minute arrival of his naval colleague, serious miscarriage was to occur both at Anzac and along the lines of communication. Of these, the proximate causes are now definitely ascertainable. That of the local breakdown will be traced in this chapter.

* * *

The objective in the remarkable and important military operations of which the medical history is now to be narrated was, once more, the Sari Bair range, together with ground to the north sufficient to secure the position and open the way for an immediate advance. The plans provided for three sets of operations. The main assault on the range was to be made by two columns with a covering force, and was to issue from the open left flank of the Anzac position. These forces would be composed of troops from the N.Z. & A. and 13th British ("New Army") Divisions and the 29th Indian Brigade, who, after a night approach, would at dawn assault the heights of Koja Chemen Tepe (Hill 971) and Chunuk Bair: the 3rd Light Horse Brigade would simultaneously advance on Baby 700 from the trenches on Russell's Top. On the north a new landing was to be made at Suvla Bay by British troops. These operations would take place on the night of August 6th.

As diversions, or to supplement the main assault, strong local attacks were planned for both the Anzac and Helles front. At Anzac this scheme included sorties from Pope's Hill and Quinn's Post by the 1st Light Horse Brigade and from Steele's Post by the 6th Australian Battalion, and, in particular, an endeavour by the 1st Australian Infantry

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Brigade to capture the very strong position known as "Lone Pine" on the 400 Plateau. A feint on a major scale would be made at Helles. Taken as a whole, and having regard to all the involvements from home base to the fighting front, few more complicated military operations can have been attempted in the history of warfare. Amid the extreme secrecy required by this elaborate plan the medical service was insufficiently and tardily forewarned; the medical arrangements as a whole were a week late. As at the Landing, the military provision for maintenance was unduly subordinated to the preparations for movement.

Medical plan: general

Learning on July 11th the general scope of the operations, the D.M.S., M.E.F., at once submitted to General Hamilton, through the D.A.G., an estimate based on 30,000 casualties "to be spread over three days." This number was reduced by the Commander-in-Chief to 20,000. The tactical medical arrangements of the Director of Medical Services were definitely based on the strategic plan of developing Lemnos for light cases, so as to serve the interests of the fighting formations by promoting rapid return to duty. Application was made by cable to the War Office for forty medical officers and 500 men, with equipment and hospital tents "for the expansion of Mudros to 9,000 beds," and also for thirty "temporary hospital ships." Both of these provisions were "for the operation." Each ship was to be equipped for 800 cases, for which a staff of 6 medical officers, 10 nurses, and 35 orderlies was requested. All the staffs asked for were sent, and were distributed through the P.D.M.S.: the first drafts arrived at Mudros on August 6th and 7th.

Sea transport

The extended scheme—already under way—of twenty-seven hospital ships for the Mediterranean was pushed forward and was being completed during the operations. This, however, was for normal evacuation only. No special hospital ships were prepared, though some three or four were diverted from elsewhere.

Asked by the War Office for thirty special transports to act as temporary hospital ships for the operations, the Admiralty advised that such vessels could not be fitted in

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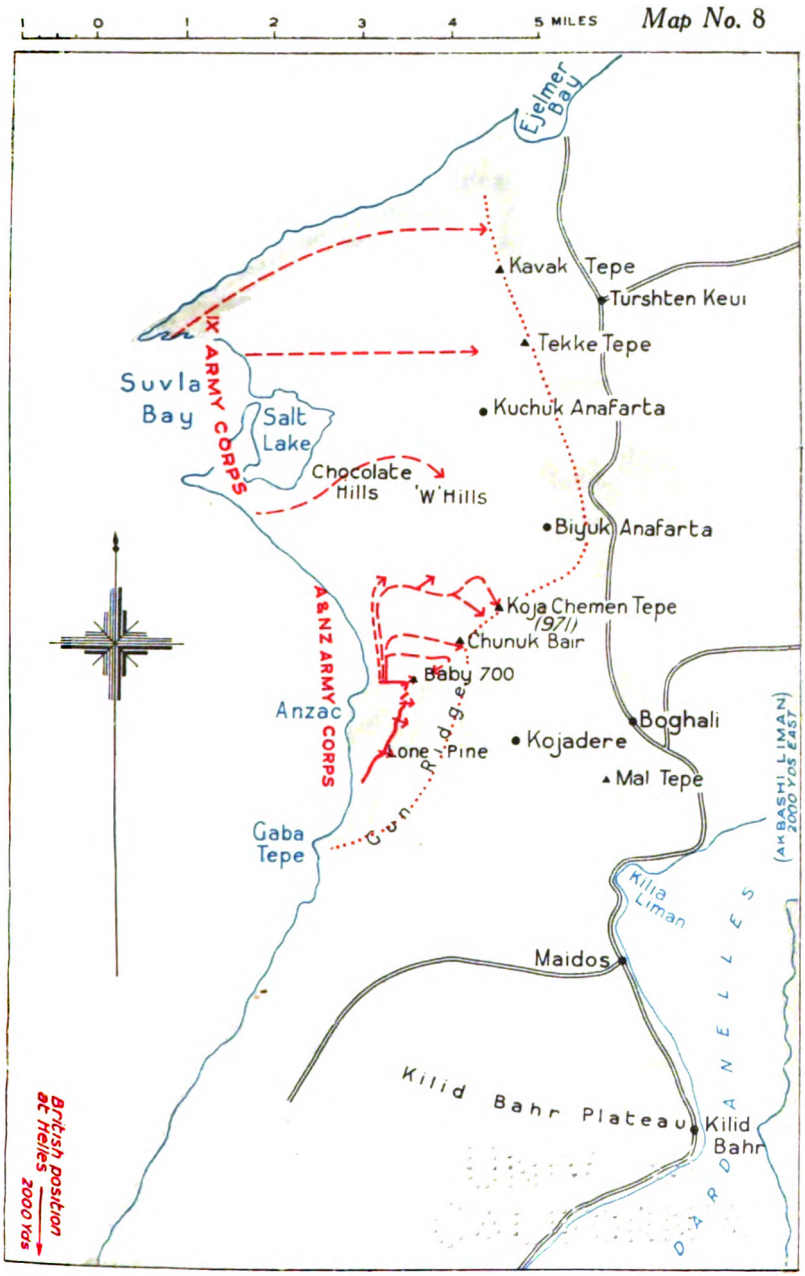

THE ANZAC-SUVLA AREA, SHOWING THE OBJECTIVES OF THE AUGUST OFFENSIVE

The front proposed to be occupied at the end of the main operations is shown by a red dotted line.

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time,[1] and recommended that reliance should be placed "primarily on hospitals ashore in the sphere of operations" —that is, the advanced and expeditionary bases. Reinforcements from England would be delayed if fast transports were used for the evacuation of wounded and were thus retained in the Mediterranean. It was, however, agreed that, from the troopships conveying the new divisions for the offensive, twenty-five specified vessels (which proved to be of very varying quality) might, as they arrived, be equipped and staffed as "ambulance carriers" or as hospital ships.

Conflicting policies

In favouring reliance on hospitals at or near the front, and in its provision for the operations, the War Office appears to have been greatly influenced by the Principal Director of Medical Services. On July 6th this officer concluded a tour of the Dardanelles, and, becoming aware of the nature of the proposed operations, was profoundly concerned for the disposal of the battle casualties. Seeing saturation point already almost reached at the expeditionary bases, he concentrated chiefly on the clearance of convalescents from them to England; but he also strongly recommended to the War Office continuance of his scheme for the development of Lemnos for serious cases by establishing a "Dardanelles Hutted Hospital" of 1,040 beds, and "probably others"— with an ultimate prospect of 9,000 "first-class" beds. The views of the P.D.M.S. (General Babtie) and the D.M.S., M.E.F. (General Birrell) for the intermediate base were thus brought into open conflict, the former favouring local development in the interests of serious and urgent cases, the latter supporting the policy laid down by G.H.Q., M.E.F., in the interests of "return to duty."

Base and Lines of Communication

The number of stationary and general hospitals sent by the War Office with the new divisions had been much below that allowed in "War Establishments," special accommodation for the August offensive being provided to a great extent by "expansion" of the existing hospitals.

[1] It is clear that the War Office intended that the "temporary hospital ships" should be used as an equivalent of "hospital carriers" (*see p. 223*). Whether it was proposed that they be painted white, does not appear. Much discussion at cross-purposes between navy and army is betrayed in the use of terms, hospital carrier and temporary hospital ship in particular being confused.

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For this purpose some 300 medical officers, 330 nurses, and 1,300 other ranks had been sent.[2] The diversion to Lemnos of No. 3 Australian General Hospital has been mentioned. In addition, certain Canadian stationary hospitals were apportioned to the Dardanelles. Clearance of invalids from Egypt and Malta in preparation for the offensive was hampered by the fact that the transportation of the 100,000 new troops had monopolised most of the large vessels available and held up even the original scheme of hospital ships. Thus on August 6th, immediately before the attack, the Principal Director of Medical Services, who expected 20,000 wounded at the bases, could reckon on only 11,000 beds in Egypt and 7,000 in Malta, no reserves being available. Even so, his calculations were in neither case entirely fulfilled. On the eve of the operations the Commander-in-Chief and the War Office were informed by him that it might "be necessary to send considerable numbers of wounded direct to England."

Intermediate Base—hurry to create

On July 15th an able administrator, Lieutenant-General E. A. Altham, was appointed Inspector-General of Communications and made his headquarters in the *Aragon*. During this week no fewer than 4,159 casualties, chiefly sick, had passed through Mudros Harbour to the expeditionary bases. An eleventh-hour effort was now made to develop Lemnos as an intermediate military medical base. The west shore of the harbour was surveyed for a hospital centre and concentration camp. Under the Director of Works[3] piers, stores, and roads were begun and efforts made to deal with the water problem. An Egyptian labour corps was brought over. Australian motor-ambulance waggons and lorries—to which hitherto landing had been refused—and

[2] Before the South African War the hospital accommodation allowed by the War Office for a campaign was on a basis of 10 per cent of the total strength. In consequence of the introduction after that war of an improved sanitary organisation, this was reduced (at the instance of the Army Council) to 7 per cent. It presumed (perhaps justifiably) the possibility of a temporary expansion, in emergency, of 100 per cent—*e.g.*, of a 1,000-bed hospital to 2,000. For the Dardanelles Campaign this proportion of personnel was provided, but largely as "drafts"; the allotment of medical units was below normal and the possibilities and duration of "expansion" were stretched unduly. The special requirements of the campaign, it is evident, were imperfectly foreseen.

[3] To which position the Chief Engineer of the A. & N.Z. Army Corps (Brig.-Gen. A. C. de L. Joly de Lotbinière) had been appointed.

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other transport were hurriedly sent for; but on August 1st the transport detachment at Lemnos had only four ambulance waggons for use on shore.

The five new British divisions, two of which were without artillery,[4] were provided with the normal establishment of field medical units and clearing stations. Apart from the latter, no line-of-communication medical units were sent. On July 19th the D.D.M.S., Lines of Communication, complained that he had "only four Stationary Hospitals to accommodate the sick of nine divisions." Eight more were urgently asked for, "more still" if further divisions should be sent. At the same time the base in Egypt was cabled that No. 3 Australian General Hospital, which arrived at Alexandria on July 25th, should be retained there: Lemnos was still totally unprepared for such a unit. The hospital was, however, sent up at the desire of the P.D.M.S.

To assist the D.D.M.S., Lines of Communication, in the administration of the island as an intermediate base, assistant-directors of medical services were appointed for East and West Mudros, but it was not till August 1st that the A.D.M.S. for West Mudros arrived. The D.D.M.S., L. of C. (acting under the Inspector-General of Communications and in conjunction with the Principal Naval Transport Officer), with an A.D.M.S., directed from the *Aragon* the flow of casualties to the bases and of medical reinforcements and units towards the front, and also the distribution of medical stores.

Expansion at Lemnos

On August 3rd, in the absence of new stationary hospitals, the four established at Mudros—Nos. 15 and 16 British and 1 and 2 Australian—were each ordered by the D.D.M.S., L. of C., to expand to 1,000 beds. The two Australian units—each originally for 200 beds—would undertake this without any addition to their staff and with only partial replenishment of losses through sickness. To render it possible convalescents were temporarily attached for duty to No. 1, and

[4] The 53rd and 54th Territorial Divisions—"half trained and at half strength" (*Gallipoli Diary, Vol. II*). "The fatal error was made of embarking the personnel and equipment of their field ambulances on different transports in England, with the result that for some time after the divisions landed in August the field ambulances were practically helpless without their equipment, and assistance had to be obtained from other divisions" (*British Medical History of the War, Vol. IV, General*).

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the 30th British Field Ambulance to No. 2. The male staff of No. 3 Australian General Hospital arrived on July 29th in the transport *Simla,* which became a dépôt ship for all medical personnel and nurses; the equipment of the hospital, sent from England in another transport, did not reach Mudros till three weeks later.

In further pursuance of these plans No. 2 Stationary Hospital, as a step preparatory to a move to West Mudros, on August 3rd handed over "as a going concern" to No. 1, which at the time, with a staff of nine officers and eighty-nine other ranks, held 409 cases. On August 4th No. 29 British (Lowland) Casualty Clearing Station landed at West Mudros to form a convalescent dépôt for 1,000 cases. The base dépôt of medical stores remained at East Mudros, ordnance equipment and stores in the storeship *Minnetonka* in the harbour. It was August 4th before No. 2 Stationary Hospital, and the 5th before No. 3 General, were landed at West Mudros on a bare and roadless hillside—without tents or equipment, without water-supply other than the tank ships and with only one water-cart each, with no sanitary provision whatever and with little transport other than hand carriage —to prepare for the vast operations timed for the 6th. The assistant-directors of medical services at East and West Mudros respectively took up their duties on August 4th. On the 7th and 8th arrived the female nursing staff of No. 3 Australian General Hospital and eighty-five Q.A.I.M.N.S. sisters for staffing the transports, with 150 medical officers and some 600 other ranks of the R.A.M.C. These were held in the dépôt ship *Simla,* and were thence distributed. No new hospitals had been opened up when, on August 6th, operations began, and the hospital accommodation actually available on Lemnos was for only a few hundred cases.

Scheme of evacuation

The medical arrangements of the D.M.S., M.E.F., provided for clearance direct from the beaches to the base by hospital ship, and substituted Imbros for Lemnos as the clearing centre for evacuation by transports, the harbour at Kephalos being made the pivot both for a (black) "temporary hospital-ship" service which would ferry to Mudros all "28-day cases" and also for

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a similar service direct to the expeditionary bases. Casualties were to be classified on shore at Gallipoli and brought to Imbros by sweepers and trawlers.

Naval arrangements

For landing the troops, large steel self-propelled "K" lighters (known as "beetles,"), with drawbridge and accommodating 500, had been assembled; but no special provision was made for the use of these, or of other shallow-draft barges, for wounded. Under the naval medical scheme (submitted on July 29th by Admiral de Robeck) "prepared launches" would alone ply from the beaches to the hospital ships, while ships' lifeboats would carry to trawlers, which were substituted during the operations for the much more commodious and suitable sweepers—required for the troops. This substitution, the lack of medical barges, and the non-provision of launches for the D.M.S., M.E.F., and D.D.M.S., Lines of Communication, caused grave concern to the Director of Medical Services, and not without reason. He had long before asked that the medical service should have launches and other such craft of its own.

P.H.T.O. arrives

At this critical juncture a new and important element was introduced into the situation. On July 28th Surgeon-General Porter, the Principal Hospital Transport Officer, arrived in the hospital yacht *Liberty* to "direct the movements of all sick and wounded of both Services by sea in the Mediterranean." He reported to the vice-admiral and presented his instructions to the Commander-in-Chief, M.E.F.; and the administrative confusion became confounded indeed. The departments of the Mediterranean Expeditionary Force chiefly affected were those of the Director of Supply and Transport, and of the Director of Medical Services. The officer on the military side who corresponded to the Principal Hospital Transport Officer on the naval was the Principal Director of Medical Services, and General Porter at once took over from the latter all responsibilities in connection with evacuation by sea. After many conferences concerning the interpretation into practice of the P.H.T.O's instructions from the Admiralty, it was agreed that in controlling the means and methods of transporting the wounded, after leaving

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the beaches, between the various (so to speak) relay posts on the sea lines of communication to the expeditionary base and thence to the home base, he should work in close conjunction with the Principal Naval Transport Officer ("P.N.T.O.") and staff of the Inspector-General of Communications ("I.G.C.") at Lemnos. These three officers (or their representatives) would form an executive triumvirate at Imbros and Mudros. Classification would still be carried out, and the destination of casualties would thus be decided, by the army medical service, which remained responsible also for ministration and administration on shore, and for the efficiency and supply of personnel and provision of medical stores for use in both hospital ships and temporary "carriers."

The military scheme for evacuation was shown to the P.H.T.O. for the first time on August 3rd, and he agreed to accept responsibility for its operation. Though he accepted the general plan of the D.M.S., M.E.F. (including the use of Imbros as the classifying and clearing centre), the scheme in detail was considered by him "bound to fail" through insufficiency of hospitals ships to maintain the proposed service to the bases and of fleet sweepers for the ferry service to Lemnos. On August 5th he, with the new D.Q.M.G., M.E.F. (Major-General G. F. Ellison), hastily drew up a modified plan (the "Porter-Ellison scheme") and had it "distributed to as many ships as possible." Under this scheme, in order to maintain a "white ship" anchored constantly close in shore at all four beaches, eight hospital ships were to be held constantly within the Dardanelles zone. In conjunction with trawlers these would maintain a short ferry-service to Imbros, transferring cases there to "ambulance carriers" (as transports, when staffed and equipped for sick and wounded, were now being called). A similar service of "ambulance carriers" replaced the sweeper service from Imbros to Mudros for the carriage of light cases. Evacuation to the base would therefore be chiefly by "black ships," with such additional hospital ships as might become available. On August 6th eight hospital ships were available at the Dardanelles. Of the twenty-five transports ear-marked by the Admiralty for black "ambulance carriers," only nine had

Scheme revised

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as yet been prepared: a tenth was used as dépôt ship for medical and nursing personnel: eleven others had not arrived, and four of those specified were found to be totally unsuitable. All these vessels were debarred from transmitting by wireless.

Local arrangements for the Suvla operations were quite distinct from those at Anzac, and the Anzac area itself was divided into two separate spheres of evacuation for the right and left respectively, the dividing line running from Ari Burnu up the central spur.

Land arrangements —control on Beach

The "feints" planned for the 1st Australian Division in the original Anzac area were regarded at Army Headquarters as of quite minor importance—the Director of Medical Services was indeed not even informed of them. But at Anzac it was realised that the "Lone Pine" diversion at least must develop into a serious engagement involving heavy casualties. The control of the Australian Casualty Clearing Station still lay with the A.D.M.S., 1st Australian Division, Colonel Howse: and with the extension of the fighting front the responsibility for all evacuation from Anzac Cove would fall on him. Greatly perturbed at the entire absence of instructions from the Director of Medical Services, in particular of any sign of assistance to the C.C.S. in clearing that medical "No-Man's Land"—the Beach—he asked on July 26th that the Tent Division of the 1st Australian Field Ambulance should be relieved from Lines of Communication duties to carry from the beach to the boats. This request was refused. Thereupon, as at the Landing, he adopted an attitude that gave to his requests the force of a deliberate demand on behalf of Australia. In a memorandum to Corps Headquarters on July 29th, after pointing out that the staff of the C.C.S. was "so depleted at present that it cannot possibly clear the casualties expected in the Army Corps," he asked that

> A senior officer with not less than 100 bearers and 500 stretchers should be detailed to take over entire control from high-water mark. . . . The 1st Australian Casualty Clearing Station and any other units used as clearing stations would naturally come under the control of the above officer.

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His own responsibility, he requested, should "be defined as divisional," and he desired that Australian medical officers be sent from Egypt in reinforcement of medical units at Anzac. He concluded—

> Whilst clearly recognising that I have no right to review or ask for information as to the arrangements made or contemplated by the D.M.S., M.E.F., yet I submit, with all due deference, that as the senior medical officer present with the Australian Imperial Force here I shall be called upon by the Commonwealth to state what steps I took to avoid a repetition of the painful inadequacy in the provision made for the care of Australian troops in April.

Two days later, on August 1st, the D.M.S., M.E.F., for the first time, visited Anzac and conferred with the D.A. & Q.M.G. and the two A.D'sM.S. On the following day it was notified that "medical embarkation officers" would be appointed for the operations by G.H.Q., M.E.F. Two British casualty clearing stations would land on the 6th. These, "with the C.C.S. used as a dressing station under the 1st Australian Division," would clear casualties to the boats from Anzac Cove and from the beach north of the Cove, at present impossible to use through enemy fire, but on which, when the fighting columns had cleared the country, the A. & N.Z. Army Corps would build two new piers. Patients were to be classified at the field ambulance dressing stations into "28-day" cases (*i.e.*, cases likely to become fit for discharge to duty) for Mudros, others for "base": "light cases" were to be held on shore. On August 5th the A.D.M.S., M.E.F. (Colonel Keble), landed as "Medical Control Officer" (representing G.H.Q.), the second-in-command of the Australian Casualty Clearing Station (Major J. Corbin) was appointed "Medical Embarkation Officer" for Anzac Cove. The D.A. & Q.M.G., A.N.Z.A.C. (General Carruthers) continued to function as a virtual deputy-director of medical services to the Army Corps. The medical administrative chain from Divisions to Lines of Communication was thus a peculiarly assorted one. Five British medical officers were attached to the 1st A.C.C.S. for "classifying the wounded" into the two categories—for "Mudros" and for "base." A reserve of 500 stretchers each was promised for Anzac and the new front, but no special bearers were provided for clearing from the beaches.

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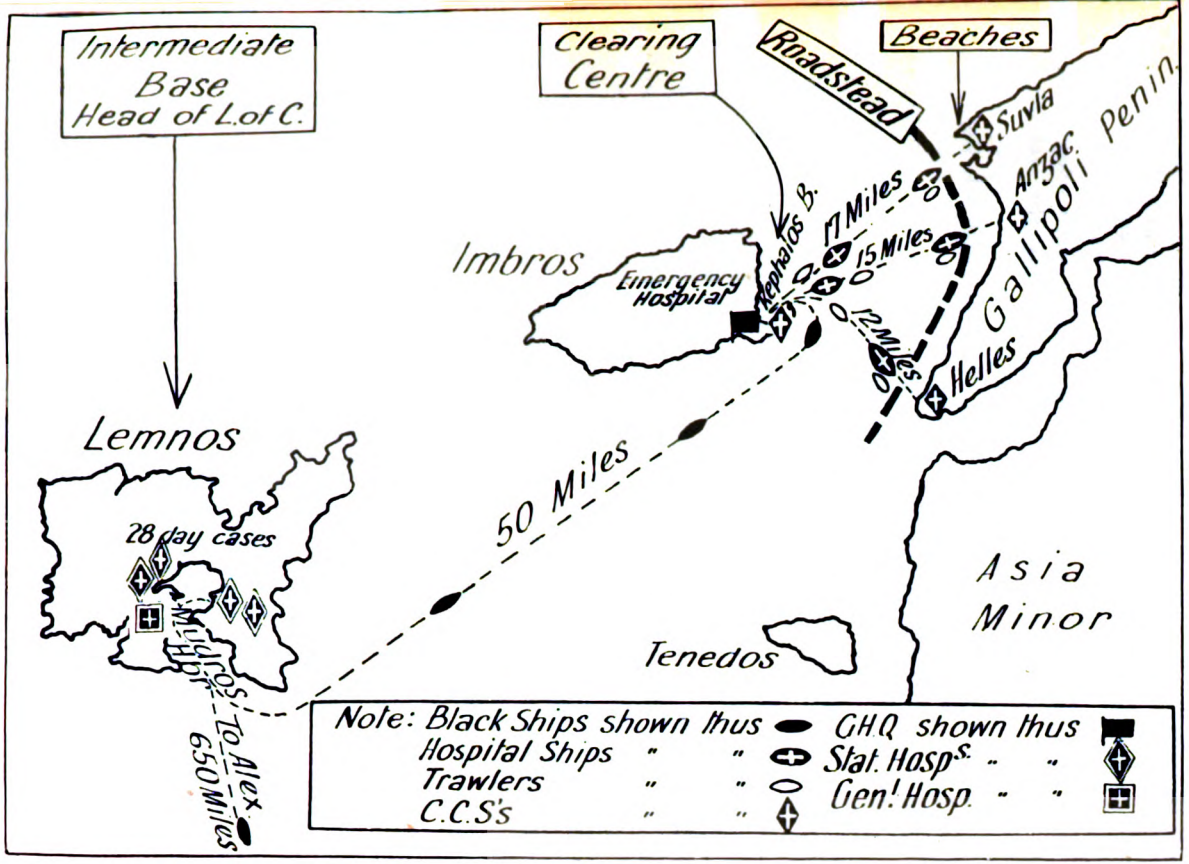

Map No. 9

THE SCHEME OF EVACUATION DURING THE OPERATIONS OF AUGUST 1915

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1st Australian Division

For the "Lone Pine" operation the A.D.M.S., 1st Australian Division, made the 3rd Field Ambulance responsible; for "Steele's Post," the 2nd Field Ambulance. Advanced dressing stations were selected for each. The headquarters of the 1st, 2nd, and 3rd Field Ambulances were notified as "divisional collecting stations" for lightly wounded, that of the 2nd being shifted to the cove. The ambulance problem was simple, but any accumulation of wounded in the open might entail disaster. Rapid clearance was therefore ordered; only essential first-aid was to be given. To meet the chief difficulty of the regimental bearers — clearance through trenches and saps—thirty naval stretchers were obtained.

N.Z. and A. Division

For his formidable problem of clearing wounded from the wild country on the left the A.D.M.S. of the N.Z. & A. Division (Colonel Manders) had only two complete field ambulances (N.Z. and 4th Australian) and the bearers of three others (1st and 3rd Light Horse and New Zealand Mounted Rifles), all of which arrived on the 5th, while their tent divisions were retained at Lemnos through an error due to defective *liaison* between the D.M.S., M.E.F. and D.D.M.S., Lines of Communication. In addition to taking charge of any front occupied by the main offensive on the left, Colonel Manders was responsible for clearance of casualties from the sorties at the head of Monash Valley and the advance on Baby 700. To meet the situation, he broke up his two complete units into sections, allotting the "B" Section of each to the Monash Valley relay, and the "A" Section to Russell's Top and reserve. "C" Sections of each, and the light horse bearers, he allotted to the two assaulting columns and the covering force. Tent personnel of these were to form dressing stations inland as soon as possible; otherwise (as with bearer divisions and the regimental bearers at the Landing) units were to suit their action to events. The A.D.M.S., 13th British Division, had the 39th, 40th, and 41st Field Ambulances complete. The 108th Indian Field Ambulance worked independently with its brigade of Gurkhas and Sikhs.

The diversions and feints which initiated the great offensive were determined and bloody. At 4.30 p.m. on the 6th a

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sortie in force was made at Helles which cost over 1,000 casualties. At 5.30 p.m. the 2nd, 3rd, and 4th Australian Battalions, supported immediately by the 1st and later by the 12th and 7th, after some bombardment rushed Lone Pine from a concealed forward line connected by tunnels, and entered on a three day's hand-to-hand struggle for its retention—a struggle which stands high in the annals of the A.I.F. and, though successful, cost 2,277 (approximately fifty per cent) in casualties to the six battalions chiefly engaged. During the night the engineers, working forward from the tunnels and in the open, connected the positions by narrow saps. Through these, after the dawn of the 7th, passed the wounded—and everything else.

Clearance from Lone Pine—August 6–7

The regimental medical officers of the 1st and 3rd Battalions decided to work from aid-posts in the original line until the position was occupied. The R.M.O., 2nd Battalion, took part in the assault and formed a temporary aid-post in the captured trenches. With his own bearers and those of the 1st and 3rd Battalions—the medical officer of the latter being wounded early, as was the commanding officer of the 3rd Field Ambulance—and with the assistance of the sanitary officer and his details, the assault area and the captured trenches were by morning cleared across the open to aid-posts in the old line, whence they were cleared to the cove by the 3rd and 1st Field Ambulances working in relay. Some 700 cases, serious and slight, passed through during the night.[5]

The sorties from Steele's, Quinn's, and Pope's were simply tragedies of war, brief and terrible. Two from Steele's Post (at 12.30 and 2 a.m.) failed of their objective—machine-gun positions enfilading the narrow No-Man's Land of Quinn's—and cost 80 killed and 66 wounded out of 300 who emerged from tortuous tunnels on the thirty yards of No-Man's Land. The wounded who crawled or were dragged back were soon cleared by the 2nd Field Ambulance down "Bridges' Road." In the

Steele's, Aug. 7

[5] "B" section bearers of 3rd Field Ambulance cleared to the two advanced dressing stations. "C" section relayed to the 1st Field Ambulance headquarters. From there 35 of the latter's squads and "A" section of the 3rd carried to the beach.

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evening, at the urgent request of the A.D.M.S., N.Z. & A. Division, an officer and twenty bearers from this unit were lent to him for work on the new beach.

Quinn's and Pope's

The sorties from Quinn's and Pope's and the attack on Baby 700 were to have synchronised with the main assaults of the two columns at 4.30 a.m. These had been held up, but the local attacks were carried through. At Quinn's the first line (of the 2nd Light Horse Regiment) to breast the parapet was within sixty seconds killed or wounded. The other lines were happily stopped: some 37 wounded who fell back into the trench were collected by the regimental medical officer in a slight dip twenty yards behind the line—thirty-five yards from the enemy—whence by 10 a.m. they were slid down to the gully 100 feet below. The sorties from Pope's by the 1st Australian Light Horse Brigade and Royal Welsh Fusiliers were little less costly.

The seriously wounded in Monash Gully (some 173) were collected to the New Zealand dressing station below Pope's. Here, in spite of a good relay system, through insufficiency of bearers many lay during the whole day, clearance being completed during the night with the help of the Australian sanitary section.

Baby 700

The advance across "The Nek" on Baby 700 is one of the most heroic tragedies in Australian history. Of 540 light horsemen of the 3rd Brigade who went out in four waves at varying intervals, only some 170 returned uninjured; 138, wounded near their own line, got back or were dragged in by comrades or regimental bearers. In the burning heat of this terrible day the rest soon died where they fell. Casualties were quickly cleared to the New Zealand dressing station on the left (in "Mule Gully"), now absorbed into the evacuation system of the new front.

Anzac Cove, August 6-7

Between 6 p.m. of the 6th and 6 a.m. of the 7th 1,016 wounded reached the 1st Australian Casualty Clearing Station. No special provision having been made for these operations (of which the D.M.S. does not appear to have been informed), the clearing station was faced with the same

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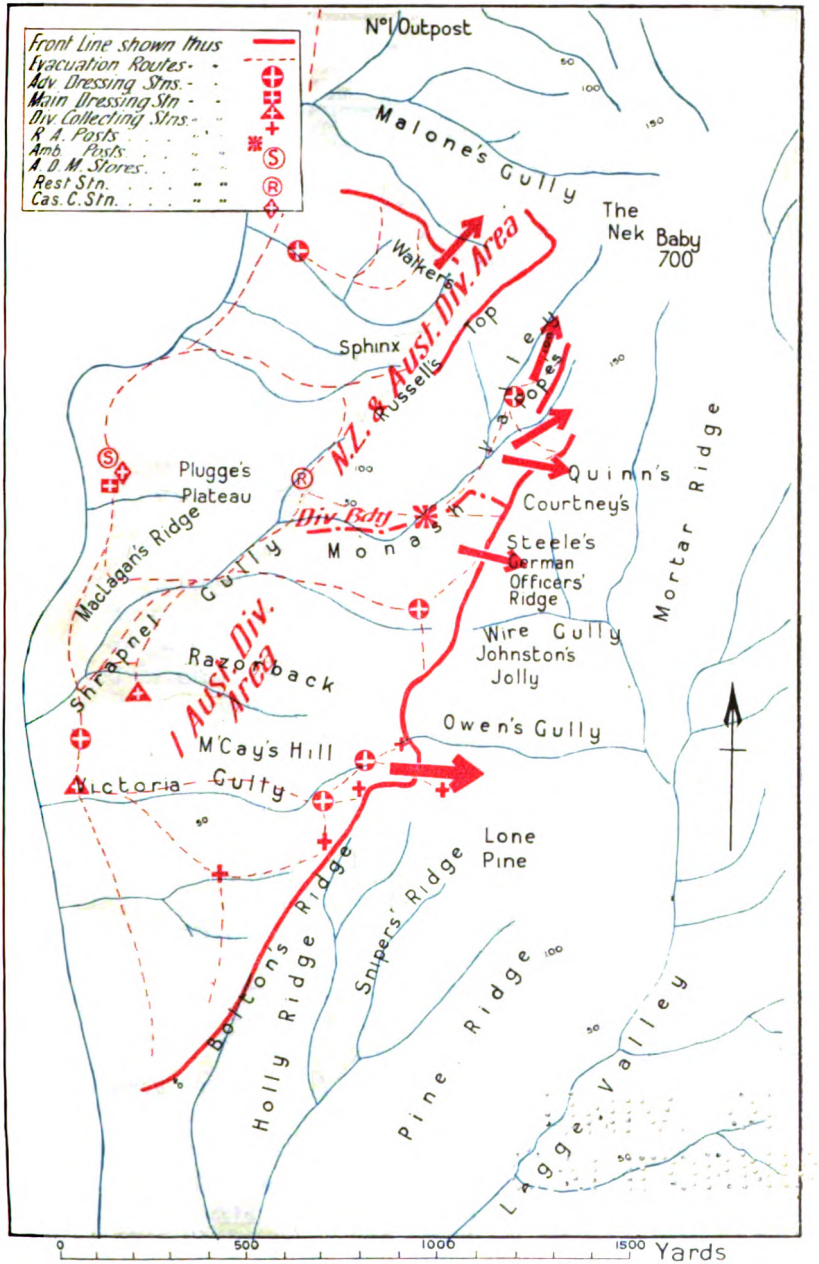

THE ANZAC AREA, SHOWING THE ROUTES OF EVACUATION FROM THE BATTLE OF LONE PINE. ALSO THOSE FROM WALKER'S RIDGE, POPE'S HILL, QUINN'S AND STEELE'S POSTS DURING THE FEINTS OF 6TH-7TH AUGUST 1915

Height contours, 10 metres.

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difficulties as at the Landing—in particular, shortage of sea-transport. By 4.30 p.m. on the 6th the regular hospital ship had been filled by the clearance of 500 sick and of some 100 wounded in a Turkish raid on the right, and she sailed for the base. The hospital ship *Sicilia,* which took her place, was full by midnight (800 cases). Meanwhile 400 wounded from Lone Pine littered the Beach, to the serious concern of the Medical Embarkation Officer, who appealed to the G.O.C., A. & N.Z. Army Corps. The situation was relieved, however, by the arrival at dawn of the hospital ships *Delta* and *Dunluce Castle* for Europeans and *Seang Choon* for Indians. These vessels had been allotted for the Anzac operations by the P.H.T.O., and the special scheme of clearance through Imbros now began to operate.

During these costly but, as is now known, largely successful attempts to hold up the Turkish reserves on the right, the main attacks on the heights were in the throes of grave misadventure, and their medical arrangements were involved in unhappy miscarriage. The account of these is deferred until events in the right sector have been followed to their conclusion.

Lone Pine, August 7-9

For some time no suitable position for an aid-post could be formed in Lone Pine itself. The casualties from the terrific bombing counter-attacks on the 7th, 8th, and 9th were extricated with the utmost difficulty, the process being greatly helped by the naval stretchers. Like the fighting itself, this work demanded sheer courage, endurance, and resource. For its part in this affair the A.A.M.C. received commendation in peculiarly high terms from the divisional commander, Major-General H. B. Walker.

Between 6 a.m. and 6 p.m. of the 7th some 700 casualties were cleared to the cove. Stretchers ran short, and the advanced dressing station became congested, but the situation was relieved by the arrival of the 2nd Light Horse Field Ambulance bearers with stretchers, and by the action of the A.D.M.S., who peremptorily checked all re-dressing of wounds and instructed that "hopeless" cases should be held

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and that all should walk who could. From the 8th, bearers worked in twelve-hour shifts: 1,500 passed through the relay posts in forty-eight hours.

By the night of the 9th the Lone Pine position was secure. Regimental aid-posts were established forward, and on this front the tumult and fighting died down, into trench-warfare, with the aftermath of a sick-rate more wasteful than all the woundings. In all, from August 6th to 9th, 3,463 cases from the right front were cleared to 1st Australian Casualty Clearing Station. The roadstead being common to the two Anzac fronts, from the 7th onwards evacuation from the cove became closely involved with that from the new front.

Left front—N.Z. and A. Divn.

The collecting and clearance to the beach of the wounded from the Homeric fighting on the main range and northern ridges of Sari Bair afford fine material for a study of divisional medical tactics. Such a study will be found in *The New Zealand Medical Service in the Great War,* to which these operations are particularly germane.

The ultimate objective in the retreat of the wounded—as evacuation may be termed—is the military base of operations. In this movement, as in attack, the events of each successive stage are linked with, and their issue largely determined by, the success of those preceding and following. This was peculiarly the case in the operations under review.[6] Description of the collecting of Australian wounded on land will therefore be followed up, in the next chapter, by a connected account of the whole chain of events. It will then be necessary to appreciate from a broader outlook the course of the evacuation to the bases.

To appreciate the course of events on shore and the medical problems, it is essential to have in mind the topography and character of the country. Five chief spurs (not counting Walker's Ridge) ran from the main range north of Anzac and ended in foot-hills at a distance of from 500 to 800 yards from the beach, the space between hills and beach being flat open country. The second and third of

[6] These operations consisted of assaults and counter-attacks taking place over a period of four days and culminating in a great Turkish counter-attack at daybreak on August 10. It was not, however, till nearly the end of the month that the captured positions were consolidated and linked up with Suvla.

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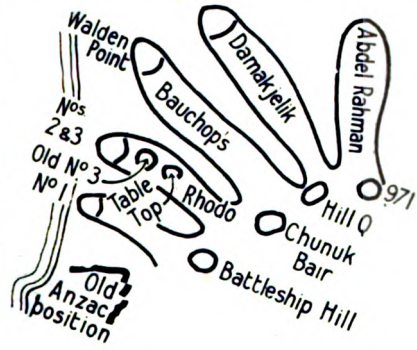
these spurs ("Rhododendron Ridge" and "Bauchop's Hill") united at a pinnacle (which became known as "The Apex"), and thence ran for 300 yards, as a narrow spur, to join the range 300 yards below Chunuk Bair,[1] which was the central objective of the right assaulting column. The fourth and fifth (Damakjelik Bair and Abdel Rahman Bair) ran up to Hill "Q" and Hill 971, the objectives of the left column. Between the spurs ran steeply the "deres" (water-courses), now dry. Narrow and tortuous for the most part above the foot-hills, these gullies widened out shallow and open below them. They became at once the only route for reinforcements and supplies going forward, and for the outgoing streams of wounded. The most important were the Sazli Beit and Chailak Deres—which, with the southern branch of the Aghyl Dere, derived close to each other at The Apex—and the Aghyl Dere, between the fourth and fifth spurs.



Ridges and summits north of Anzac (represented as fingers and knuckles).

The nature of the country will be in some degree understood from previous description. An idea can be formed from the illustrations of the ruggedness and confusion of the ravines and ridges that were to be traversed in darkness by the assaulting columns with little assistance from maps, and among which the wounded were to be collected and cleared.

Throughout the month the days were scorchingly hot, but the nights very cold: the whole country was parched and dusty.

Operations on Sari Bair, August 6–7

The foot-hills were captured by the two covering forces by midnight of August 6th, the 40th British Infantry Brigade forming a left flank. Moving out at 9.30 p.m., the right assaulting column (the New Zealand Infantry Brigade) fought its way

[1] In the foot-hills of (or near) these were Nos. 1, 2, and 3 Outposts, reached from Anzac by a 2,000 yards sap, which had been widened for the operations to five feet.

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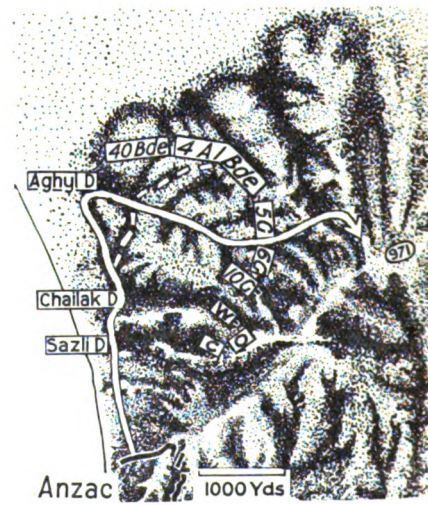
up Sazli Beit and Chailak Deres, reaching The Apex almost on time. Advance along the spur was, however, at this point held up till noon, when the foothold was extended a little farther. Casualties were heavy.

The left column consisted of two brigades—the 4th Australian and 29th Indian. The 4th Australian Brigade, with Hill 971 as its objective, was set a stupendous task. From the outset it fared badly. Attempt at a short cut into Aghyl Dere took the column (at times in single file) up a narrow scrubby gully ("Taylor's Hollow" or "Gap"), whence it emerged about day-break into a part of the northern branch of the dere. Fighting its way up this ("Australia Valley"), the 4th Brigade, its troops weakened by disease and completely exhausted, entrenched on Damakjelik Bair, in the belief that it was on a spur of Abdel Rahman Bair. The advance of the Indian troops also fell short of their objective, and they failed to join up with the right column.



Positions reached on Aug. 7. The winding arrow shows the intended route of the 4th Brigade, the broken line (white) the actual route. (The letters "W," "O," "C," and "G" represent the Wellington, Otago, Canterbury, and Gurkha Battalions.)

Regimental units; bearer divisions—by an eleventh-hour decision—followed the columns; the tent divisions followed at dawn. The work of the British and Indian units is mentioned only so far as is necessary, but throughout the operations there was manifested a fine spirit of mutual help.

Clearance of wounded

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The bearers of the New Zealand Mounted and 39th British Field Ambulances (with the right and left covering force) cleared the foot-hills of casualties and at dawn formed collecting stations near the mouth of Chailak and Aghyl Deres.

Wounded of Covering force

The bearers of "C" section, New Zealand Field Ambulance, formed a collecting station in the northern branch of Sazli Beit Dere, below "Table Top." clearing thence to the beach. Down Chailak Dere, from 5 a.m., the twenty-five squads of the 1st Light Horse Field Ambulance cleared wounded from the fighting in the foot-hills from a position half-way up the dere. Moving up after midday, the officer-in-command established a collecting station in a vacated regimental aid-post (a Turkish cook-house) some 500 yards below The Apex. Here the unit worked through four days of experience as strenuous and poignant as any in the war, clearing from regimental aid-posts close behind the fighting front. In the afternoon "walking wounded" succeeded in getting away, but clearance of severe cases was made impossible by insufficiency of bearers and stretchers and by the length and difficulty of the carry down the steep and thronged dere. At 1 p.m. the commanding officer asked the assistant-director of medical services for bearers and stretchers: "it will take today and tonight to evacuate the cases here." He was instructed "not to evacuate, but to concentrate if necessary." This order appears to have been due to the necessity of keeping open for supplies and troops the narrow defile—the only route to the position, since the upper end of the Sazli Beit route was commanded by the enemy: but circumstances presently to be related were at the same time shaping events on the beach below in such a way as to render nugatory any attempt at relief of the situation up in the deres. A few blankets and some comforts were sent, and also water, which was terribly needed. At Sari Bair, little less than at Suvla, these operations stand out among those major battles of history in which the water problem played a determining part in the issue. The circumstances of the tragic fiasco at Suvla are outside the scope of this book; but it may be noted that the

Of Right Assaulting Column

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system of water-supply for the two fronts differed fundamentally; at Suvla it was concentrated in canvas pipe line, in the Anzac Corps dispersed in tins. It was, indeed, here that the two-gallon petrol-tin began its career as a major munition of war for transport of water. There was, it is true, a shortage at Anzac—enough to cause human suffering, though not serious disaster: and even the light horse at Katia[8] did not suffer as did the troops on Sari Bair in those three burning days.[9]

Of Left Assaulting Column

With the left column went sixty-four bearers of "A" and "C" sections, 4th Field Ambulance, and thirty of the 3rd Light Horse Field Ambulance. Stretchers, medical companions, surgical haversacks, and water-bottles were carried. Obeying an order to halt, the 4th Field Ambulance at Taylor's Hollow lost touch with the brigade: disregarding it, the 3rd Light Horse Field Ambulance went on, and, forming a collecting station in Aghyl Dere near the junction with Australia Valley, cleared for the brigade during the day. Working in touch with the battalions and under considerable fire, the bearers carried by Taylor's Gap or down the dere and through half-a-mile of sand to the beach near the mouth of the Chailak, where a small trestle pier ("No. 3") had been constructed.

August 7

Stretcher cases, handed over to tent divisions in its neighbourhood, were left on the beach or, as day advanced, in the shallow dry bed of the dere; there, throughout the day, they lay in rows in the sun without shelter. Worked by squads of two, the carry was a very heavy one, and some remarkable feats of endurance are recorded. No reserve of stretchers having arrived, bearers were ordered—quite improperly—to return without them, and in many cases they did so, thus becoming crippled for further action. At dawn the 4th Field Ambulance bearers moved up through Taylor's Gap into Aghyl Dere. Failing to get touch with their brigade (which had gone up Australia Valley), they formed a collecting station higher up the dere. At 3 p.m. the 4th Brigade asked the A.D.M.S., N.Z. & A. Division, for "at

[8] *See p. 571.*

[9] It is not pleasant to recall that even this supply was gravely prejudiced by the fact that only a secondhand and broken-down pumping apparatus was available.

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least 40 stretcher-bearers, urgently required: have seen nothing of 4th Australian Field Ambulance as yet." The casualties on this flank were, however, light, and were cleared by the light horse bearers, whose commanding officer visited each regimental medical officer in turn before dark and at 7.30 p.m. reported to 4th Brigade Headquarters "all cleared." This unit bivouacked during the night behind brigade headquarters, at the head of Australia Valley.

Left sector, August 8, N.Z. and A.

On August 8th efforts to attain the objectives were renewed (now against the full force of the Turkish reserves). On the left the 4th Brigade, again attempting a hopeless task, and handicapped by error as to its position, by the failure of the Suvla force to advance, and by the desperately confused country,[10] suffered tragic disaster. Moving out at 3.30 a.m. across Kaiajik Dere (mistaken for the Asma Dere), the 14th, 15th, and 16th Battalions were almost surrounded on the spur next to that of Abdel Rahman, and only regained their position on Damakjelik with heavy loss. The medical arrangements were deplorable, and rescue work sadly ineffective. The 3rd Light Horse Field Ambulance bearers learned of the attack only in the morning, when their commanding officer, on going up to the lines, found the remnants of the battalions getting back to the trenches. The 4th Field Ambulance had not regained touch. The little carrying that was done was chiefly by regimental bearers. By a little after 5 a.m. most of the regimental bearers had left the aid-posts with wounded, and, in the absence of ambulance bearers, most of them carried right through to the beach. Here exchange of stretchers was again withheld, and the bearers returned without any. Except for the machine-gunners covering the retirement, R.M.O's and bearers were the last to leave—"each with a wounded man on his back." From forty to fifty severely wounded were got in; some others were carried by comrades; but in the retreat the battalions did not cover the same ground as in the advance, and this involved the abandonment in the scrub of many

[10] "So rugged was it (to quote from the *Official History of Australia in the War, Vol. II, p. 663*) that from the supposed starting point . . . the climbing of Abdel Rahman Bair, even in daylight and in peaceful manœuvres, would have taken the troops, though at the acme of fitness and health, longer than the time allowed for the whole operation."

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wounded who might have been picked up. The affair illustrates the lack of medical co-operation in the field at its worst; in particular, it illustrates the result of neglect of the medical service in staff orders. The bearer divisions—which only by a last-hour arrangement had accompanied the brigade in the night march—were not represented on brigade headquarters. On the 7th the bearer divisions had not been linked up; for this operation on the 8th they were simply disregarded.

In the evening of August 8th the 4th Field Ambulance bearers formed a post at the mouth of Australia Valley, and thence "relayed" to a dressing station—formed by their tent division in "Walden Grove," near the mouth of the dere—casualties brought down from the head of the valley by the 3rd Light Horse Field Ambulance bearers.

In the centre the British advanced, but did not reach the crest. Their clearance down the right branch of the Aghyl Dere was little less difficult than that down the Chailak, and more dangerous, but, with complete units, their A.D.M.S. was able to work systematically, forming advanced dressing stations up the deres, with dressing stations in the foot-hills.

Centre, Aug. 8 —13th Division

On the right the New Zealanders and Gloucesters gained a foothold on the main crest below Chunuk Bair, dug in, and from that Pisgah looked over the Narrows beneath them to the promised land beyond.

Right, Aug. 8 —N.Z. and A.

On this day the congestion in Chailak Dere appears to have reached its zenith. Every medical unit was working at full pressure, but the situation was beyond the powers of the personnel available for transportation. At 7.30 a.m. New Zealand Infantry Brigade Headquarters advised the A.D.M.S.:—

> Evacuation still very difficult. Wounded have been carried by Regimental Stretcher-Bearers to the Dressing Station over a mile and a half distant. Prompt despatch of Bearer Sub-divisions to connect with Regimental Aid Posts is a most pressing necessity.

This overlapping of the bearers recalls the Landing. The light horse collecting station was overwhelmed. At 9.30 a.m. the commanding officer reported to the A.D.M.S., N.Z. & A. Division, that

> There are no relays of bearers to take wounded from this station; my men have been working continuously. . . . The station is

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overflowing and fresh cases coming in all the time. We cannot possibly carry the patients all the way. Please arrange more bearers with two stretchers per squad. The 41st British F. Amb. cannot assist any longer.

Fifty bearers were sent, but made little impression; stretchers were insufficient; wounded accumulated. Another message at 5 p.m. brought more bearers, with stretchers which, along with the British clearing stations, had arrived that evening. At dusk many wounded, collected in a hollow behind the line at the head of Sazli Beit Dere[11] by the regimental medical officers and bearers, were brought over Rhododendron into Chailak. At 8 p.m. a British column under Brigadier-General A. H. Baldwin was timed to enter the dere for a supreme effort at dawn on the 9th, and, to afford it a clear passage, orders were given to hold up evacuation. But the order came too late to prevent a serious blocking of the steep and narrow defile, still crowded with the accumulated wounded. There is no doubt that, as on May 2nd, the movement of troops was impeded. The consequences on the former occasion had been serious; here the delay contributed to a disaster which may have influenced the course of the campaign. The story of the tragic failure of Baldwin's column, and of the successful Turkish counter-offensive, is delayed to permit an account of developments farther back, in the dressing and clearing stations.

Evacuation, August 7-8

The accumulation of wounded collected at the top of the deres had an equally unhappy counterpart below in the foot-hills and on the beach. General Godley, commanding the N.Z. & A. Division, was in general charge of the operations, with his headquarters at No. 2 Outpost, where also the assistant-directors of medical services of both the 13th British and the N.Z. & A. Divisions were established, working independently of each other, though in very effective co-operation throughout. A. & N.Z. Army Corps Headquarters—to which the Medical Control Officer responsible for the clearing stations was attached—remained at Anzac Cove.

The medical arrangements for evacuation were seriously disorganised by the fact that the two British clearing stations

[11] Sazli Dere lower down, being controlled by the enemy, was a "No-Man's Land."

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did not arrive on the 6th and could not be found.[12] The Medical Control Officer therefore arranged with the A.D'sM.S. that the tent sub-division of the New Zealand Field Ambulance at Walker's Ridge should control evacuation at the trestle pier (known as "No. 2," or commonly "Walker's"), which had been built near it, the 40th British managing that from "No. 3" pier built opposite No. 2 Outpost near the mouth of Chailak. The latter unit did not arrive at the outpost till 6 p.m. on August 7th. Instead, therefore, of forming advanced dressing stations up the deres, with dressing stations in the foot-hills, the already seriously inadequate tent subdivision personnel of the New Zealand and 4th Australian Field Ambulances, arriving on the morning of the 7th, were largely occupied on the 7th and 8th with work that properly belonged to a clearing station — namely, that of tending and clearing to and from the beach the wounded arriving at the foot-hills from the firing line; meanwhile up in Chailak Dere bearer divisions not only cleared, but also ministered, as best they could, to the wounded accumulating there. The situation is parallel with that of the 2nd Australian Field Ambulance at Krithia, but was here continued longer.

No. 3 pier at the centre of operations became at once the focus of clearing activities on shore and the natural link with the lines of communication. No. 2 pier, a mile and a half away, could in the daytime be reached only by the "long sap," which was thronged with men and mules—the reinforcements, munitions, and supplies for the grim struggle now in progress. The clearance of stretcher-cases to the roadstead was seriously hindered by those unhappy circumstances, presently to be described, whereby a fine opportunity for rapid evacuation was lost.

The movements of the tent divisions—New Zealand, Australian, and British—and the positions which they occupied, cannot be described in detail. The wounded accumulated, for the most part, in two localities. The first was in the vicinity

Wounded accumulate—the foot-hills

[12] Unable to land at Anzac through lack of small craft, these units had been held at Suvla while No. 14 British C.C.S. was disembarked there. The further delay was due to the administrative confusion on the medical side.

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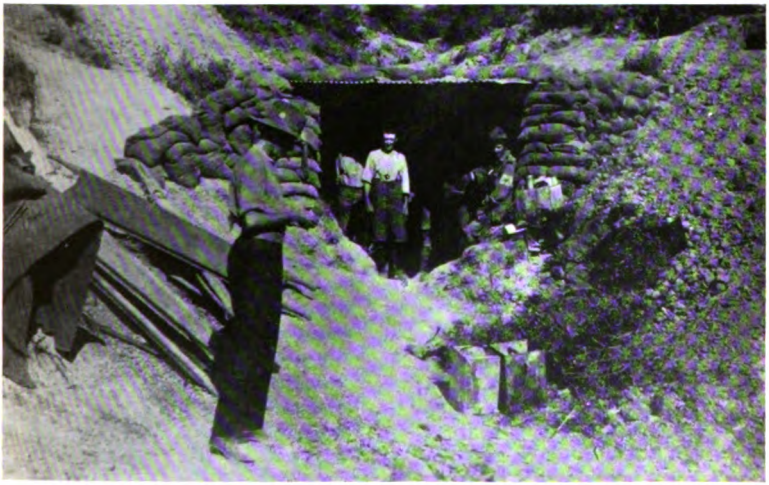
46. Wounded at the foot of Pope's Hill after the charge of the 1st Light Horse Brigade and Royal Welsh Fusiliers on 7th August, 1915

Taken by Chaplain the Rev. E. N. Merrington.
Aust. War Memorial Collection No. C2707.



47. The advanced dressing station of the 1st Field Ambulance at the foot of Victoria Gully, Anzac

Most of the wounded from the Battle of Lone Pine passed through this station, which was situated within fifty yards of the beach. The officer in the foreground is Captain C. E. Wassell, A.A.M.C.

Taken in June 1915 by Warrant Officer C. R. Elden, A.A.O.C.
Aust. War Memorial Collection No. C1127.

To face p. 304.

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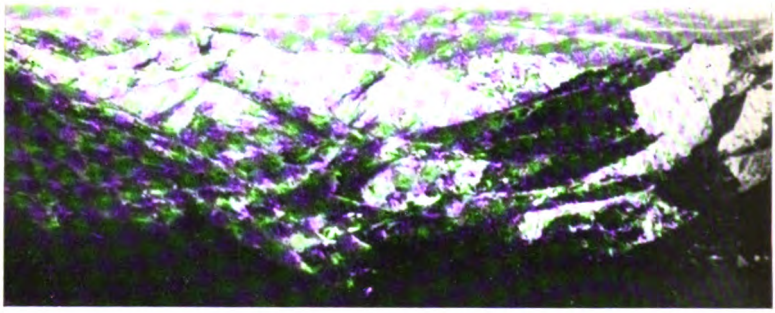

48. View of the new Anzac area from the foot-hills

The far ridge was the objective of the 4th Australian Infantry Brigade on 8th August, 1915

Lent by Lieut.-Colonel P. Fiaschi, A.A.M.C.
Aust. War Memorial Collection No. A2722.

49. A corner of the advanced dressing station, 1st Light Horse Field Ambulance, in Chailak Dere, early in August 1915

Lent by Captain E. W. Lacy, A.A.M.C.
Aust. War Memorial Collection No. C3639.

To face p. 305.

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of the pier, in depressions and the dry bed of Chailak Dere near its mouth, where the 4th Australian Field Ambulance and other units formed temporary "feeding" or "clearing" posts for cases awaiting embarkation; the second was in the shelter of the foot-hills of Rhododendron Ridge and Bauchop's Hill. Here, in various hollows (which soon obtained local names), the tent divisions formed dressing stations, received the casualties coming down the two deres or collected from the fighting in the foot-hills, and evacuated them as opportunity offered. On August 7th both the 4th Australian and 108th Indian Field Ambulances formed dressing stations in the bed of Chailak Dere between the beach and the foot-hills. The former stretched the cover of their operating tent from bank to bank, panniers being used to form an operating table. Wounded from Aghyl Dere went to this station; those from Chailak went to the vicinity of No. 2 Outpost, where the New Zealand Field Ambulance formed a "clearing station" which at 6 p.m. was taken over by the 40th British Field Ambulance. Cases were passed on to No. 3 pier. The day was very hot, water scarce, shelter difficult. By day the wounded, out in the sun, suffered from scorch and thirst; at night, clad as they were chiefly in khaki shirts and shorts, they suffered only less severely from cold.

On the 8th the 4th Australian and 108th Indian Field Ambulances were shelled out. The former, after various moves, formed a dressing station at "Walden Point." During the day wounded came down the deres in large numbers, and (for reasons which will appear) the units in the foot-hills were unable to pass on their stretcher cases. The consequences of this block were soon apparent and were very serious. Severely wounded, who were now being removed from the stretchers—which were required for the front—lay around every station in hundreds, far exceeding the resources of ministration. Little could be done for them, and their condition was pitiable in the extreme. It was estimated by the Medical Control Officer that, at nightfall of August 8th, 1,000 cases were awaiting evacuation in the dressing stations and clearing stations or in the vicinity of the pier. At 5 p.m. the two British casualty clearing stations landed. The 16th

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relieved "A" section of the New Zealand Field Ambulance at Walker's Ridge and pier; the 13th sent a detachment to No. 2 Outpost.

Beaches, August 7–8

Here must be traced the cause of this deplorable damming-back of the stream of casualties, whereby the wounded were retained near the beach under conditions which entailed terrible suffering and loss of life within a few hundred yards of the roadstead, where the hospital ships lay undisturbed. As at the Landing, failure to carry the heights involved in serious difficulty the services responsible for supplies and for evacuation. Beyond the foot-hills the open country and beach were by day continuously subjected to shell-fire and sniping, and in particular to a continuous rain of "overs." Food, water, and ammunition for the supply-dumps formed in the foot-hills had, from reasons of protection, to be landed chiefly at the cove, and, from a dépôt at Walker's Ridge, carried a mile and a half through the "long sap" by fatigues or on mules. But the wounded, the beach once reached, might have embarked direct to the roadstead, where "floating hospitals" could lie day and night and be reached in fifteen minutes. Unhappily this short cut to safety was made of little avail for the seriously wounded. In the first place, full advantage was not taken of the fact that the enemy, a signatory to the Geneva Convention (with crescent instead of cross for token), had shown himself willing to observe its obligations. No attempt was made to clear the wounded openly under the aegis of that convention. No special medical small craft, marked by Red Cross, had been provided. No. 3 trestle pier was apparently intended only for evacuation of wounded, and it was at first so used, a Red Cross flag being flown. But early on the 7th it was used—under protest from the medical side—by beach parties under combatant officers for landing stores; thereafter the flag was, rightly enough, not respected by the enemy. Although at first, through his preoccupation, this fire was only intermittent, and was ignored by those conducting the evacuation, this advantage was offset by the fact that the pier was inaccessible to pinnaces and cutters, except at full tide.

No. 3 Pier

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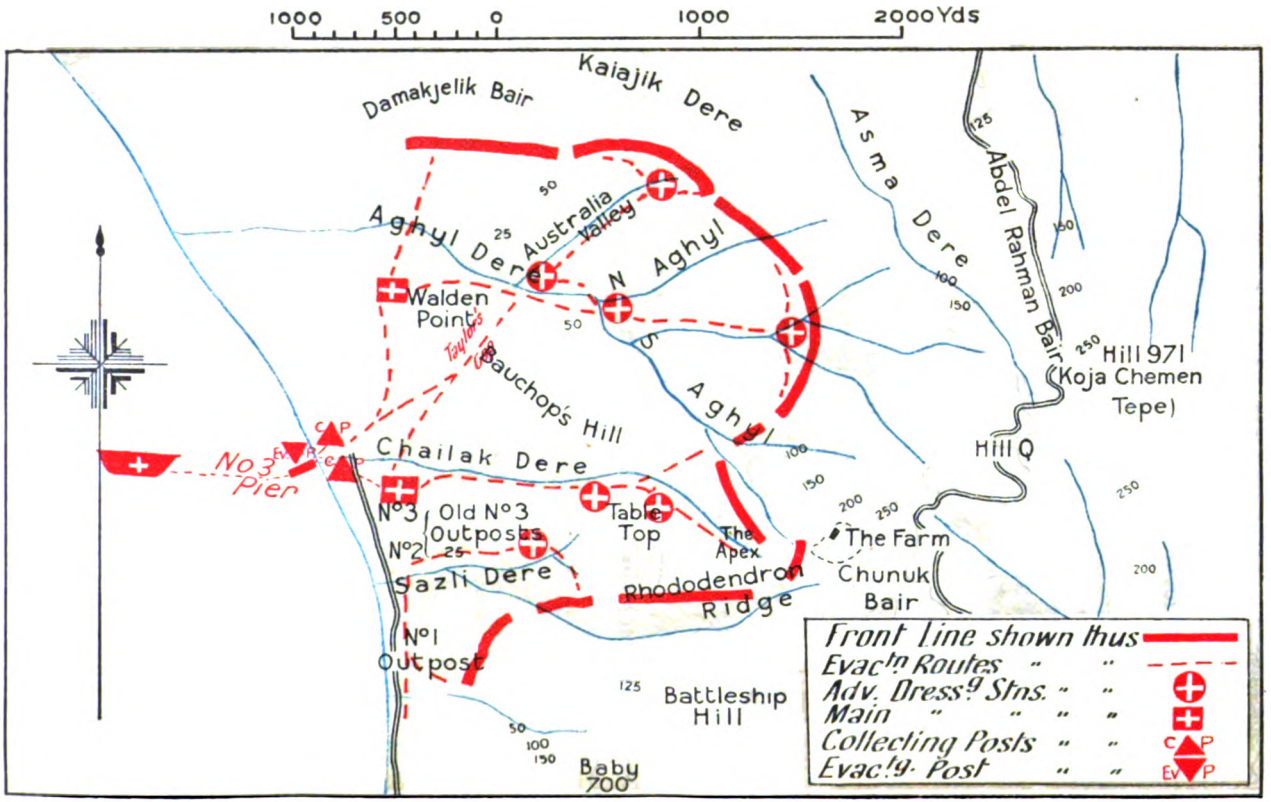

Map No. 11

THE NEW ANZAC AREA, SHOWING MEDICAL POSITIONS AND ROUTES OF EVACUATION ON 8TH AUGUST, 1915

Height contours, 25 metres.

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and that no lighters or barges were available. At noon of the 7th, in the absence of a medical embarkation officer and beach party (which was to have been found by the casualty clearing station), parties from the "clearing stations" formed by the 4th Australian, New Zealand Mounted, and 108th Indian Field Ambulances, directed by a naval embarkation officer, cleared wounded from this pier to the roadstead by ships' boats, each boat taking two stretcher cases or twenty-five sitting. The situation at 11.30 p.m. is presented in a report to Colonel Manders by the officer-in-charge of the Australian party, a New Zealand dental officer attached to the 4th Field Ambulance, whose work gained high commendation:—

> The picket boats cannot get into the pier owing to tidal conditions; we are evacuating into two ships' boats. It is impossible to handle stretcher cases, motor-driven lighters the only means. . . . I would suggest that F. Ambs. hold cases, as there is no hope of evacuating those we have at the beach. In all to-day evacuations at this station 350, principally sitting. . . . If 1st A.C.C.S. could clear, we could send along beach parties of bearers from units now round No. 3 Post.

During the night walking cases, and a few stretcher cases, were in fact thus sent round. At No. 2 pier, during this day, only the light horse casualties from Russell's Top were cleared (by the New Zealand Field Ambulance) under similar difficulties—except that the pier was safe.

No. 2 Pier

At the cove, working from an adequate pier, with experienced embarkation staff and with their own flat-topped barges prepared for stretchers, the 1st Australian Casualty Clearing Station during the twenty-four hours of the 7th cleared 1,937 cases, chiefly from Lone Pine, to the two hospital ships and two trawlers, a barge-load of 300 filling the last hospital ship about 6 a.m. on the 8th. But at the next stage ahead (Imbros) there was now developing a block, the results of which were felt on this day. At 8.30 a.m. three cutters with sitting cases, who had been brought off at full tide from No. 3 pier, were refused by the only hospital ship in the roadstead, the *Sicilia*, which was full and had no room. The boats therefore put into the cove, where they were mistaken by the enemy for

Anzac Cove, No. 1 Pier

Damming back, August 8

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reinforcements and shelled. One beach had thus emptied uselessly into another. With these cases, with others that arrived from the left front by land, and with those from Lone Pine, the cove was thronged. Beside walking cases (the officer commanding the clearing station records)

we have 200 (stretcher) cases lying huddled up in traverses: the crowd great, and accommodation and staff so small that it is impossible to do urgent operations or even to dress all the cases that need it.

Great difficulty was experienced in clearing: for during most of this day only trawlers were available. In the emergency the "sweeper" service direct from the Beach to Lemnos was resumed. At 4.30 p.m. 600 cases were taken by the fleet sweeper *Redbreast* direct to Lemnos—the first cases to be received at the new hospital centre there. From 6 a.m. of the 6th to 6 a.m. of the 9th 3,615 casualties passed through the 1st Australian Casualty Clearing Station at Anzac Cove.

Sweepers to Lemnos resume

To return to the left. The situation there at the dressing and clearing stations on the morning of the 8th is indicated by the following message sent from the N.Z. & A. Division to A. & N.Z. Army Corps:—

The Left: block on August 8

Please arrange naval transport to evacuate from beach here 100 per hour for the next 24 hours; very urgent, as wounded are dying for want of proper rest and treatment on hospital ships. Send all available stretchers and improvise as many more as possible.

The D.A. & Q.M.G. of the Corps at 8.40 a.m. informed the D.A.G., M.E.F., that "if one self-propelled lighter can be spared for evacuation of wounded here, it would end that trouble." This was backed by the Medical Control Officer:—

The condition of the wounded on the beaches in Anzac areas is desperate; two motor lighters should be sent to deal with the situation. There are no hospital ships here.

But the fighting force, engaged in a life and death grapple, was not to be diverted to lick its wounds: the lighter could not be spared.

During the daytime No. 3 pier could be used only at intervals, being sniped and fired on by machine-guns at 1,200

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yards' range from "Snipers' Nest." "Boats were left about the beach riddled with bullets." Bearers would

commandeer any barge that came ashore with stores or mules, fill it with wounded by wading out, and then shout to any picket boat they saw passing to tow the barge off.

As the "clearing station" at No. 2 Outpost, the 40th British Field Ambulance, chiefly receiving cases coming down Chailak Dere, during these two days (7th and 8th) cleared to No. 3 pier, or by the "long sap" to No. 2 pier and Anzac Cove. At their "clearing posts" at the mouth of the Chailak the 4th Australian and 108th Indian Field Ambulances received and, as opportunity offered, cleared cases coming down Aghyl Dere, after they had passed through the dressing station at Walden Grove. During the night of the 8th a detachment from the 13th British Casualty Clearing Station worked with the 40th Field Ambulance. At No. 3 pier embarkation was carried out by the detachment of the 2nd Australian Field Ambulance, who loaded boats and did what they could to relieve the most pressing needs of the cases lying about in large numbers in the neighbourhood of the pier while awaiting evacuation. By the morning of August 9th an increasing number of cases, including many stretcher cases, were being sent to the right flank—by day through the "long sap," by night along the beach road—thus diverting bearers from the front. Since No. 2 pier (Walker's) could accommodate only the smallest craft, most of these were passed on to the cove.

From the beginning of operations till 6 a.m. on the 9th, of casualties from this (left) front 1,110 had been embarked from, or about, No. 3 pier, some 746 from No. 2 pier, and 3,615 from the cove. But a comparatively large proportion of these were "walkers," and it was for the most part the less severely wounded that had reached the "floating hospitals." Stretcher cases—abdomens, heads, fractured legs, wounds to large vessels, severe lacerations—accumulated on shore, where little more than first-aid could be given.

Total cleared from Left—August 6–9

The wounded must now be followed a stage further. By the "Porter-Ellison scheme" (which left nothing to be

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desired in clearness and exactitude of instructions) in the Anzac roadstead, common to both the Anzac fronts but distinct from Suvla, hospital ships and trawlers lay together in pairs, and, "weather permitting," both were to "ferry" to Imbros. Otherwise hospital ships were to go direct to Mudros. This ferry service of "white" ships was vital, since, on account of submarines, only they and sweepers could lie in the roadstead. The reason for the interposition of Imbros as a clearing centre was that the shortage of hospital ships at the Dardanelles would not permit of clearance by any other method. The naval small-craft transferred their cases, serious ones to hospital ships, light ones to trawlers. When "full," these left for Imbros and were to be replaced at once by others, which had cleared and were standing by. Classification was made a responsibility of the "S.M.O." in the hospital ship.[13]

Roadstead, August 7–8

On the 7th, as at the original Landing, hospital ships accepted a lighter class of cases than was intended, and thus filled up rapidly, chiefly from the cove. Before daylight on the 8th the hospital ships *Delta* and *Dunluce Castle* had left the Anzac roadstead for Imbros, but instead of clearing and returning were—contrary to plan—sent on to Mudros. The hospital ship *Sicilia,* which had returned from Imbros on the 7th (retaining 240 of her more serious cases) filled again by 8 a.m. on the 8th and left for Egypt. Hospital ships in replacement did not arrive till midnight. Thus for most of the 8th the roadstead was left bare, except for trawlers and two sweepers, and by these such cases as could be got away were taken to Imbros and Lemnos. The cause of this hitch (as has been indicated) was at Imbros,[14] where the Porter-Ellison scheme was already in grave trouble and evacuation to the bases was hardly less difficult and eventful,

Naval scheme goes amiss

[13] According to the "Porter-Ellison scheme," "a load of cases, having been received on a hospital ship, should be classified by one or more medical officers specially detailed . . . into serious cases requiring proper hospital ship accommodation, and for transport of minor cases suitable for treatment in shore hospitals, or elsewhere." S.M.O's in hospital ships were instructed that—"arrived at Imbros, you will tie up alongside an ambulance carrier, transfer your cases, and return at full speed to your station," but that they should retain on board "such cases as it would be in your opinion injurious to move, remembering, however, that the number of hospital ships is limited and they are the only ones that can go on station off the beaches."

[14] The advanced head of the lines of communication.

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though less tragic, than at the Landing. It is better, however, not to shift the narrative to that quarter until an account has been completed of the operations on land. While for the time being the wounded from the fighting of the 7th and 8th are left accumulating for the most part in the tent divisions at the foot-hills and in proximity to the piers, it is necessary to follow the fortunes of the troops engaged in a desperate effort to retrieve the failures incurred and exploit the successes achieved.

Operations, August 9–10

The early morning of August 9th saw the culmination—and final failure—of the great offensive.[15] The attacks, chiefly by British troops, were based on the positions held below the crest of the range at the heads of the three deres—Sazli Beit, Chailak, and right branch of Aghyl; they had as their objective the crests fronting the New Zealand position, the summit of Chunuk Bair and "Hill Q," and the intervening slopes, which together composed the right and central sectors of the Sari Bair operations as thus far described. Of three assaulting columns, the right (New Zealanders) and left (Gurkhas and East Lancashire) attacked from the positions occupied by them. The main assault was that by the central (Baldwin's") column,[16] which had to move to the attack—timed for dawn at 5.5—up Chailak Dere. On the right, where the enemy himself attacked, the New Zealanders, by

[15] A proper understanding of the medical portion of these operations can hardly be gained without study of their military conduct. For this the reader is referred to the *Official History of Australia in the War of 1914-18, Vol. II, chap. xxv.*

[16] Commanded by Brig.-Gen. A. H. Baldwin and consisting of four battalions of the Lancashire, Hampshire, and Wiltshire Regiments.

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fighting that was never surpassed in their splendid history, retained the advanced position held by them in front of The Apex on the crest; on the left the Gurkhas reached the crest near Hill "Q"; but in the centre occurred a tragic mishap. Baldwin's column, delayed in the Chailak Dere, attempted a short cut, which ended disastrously at "The Farm," a flat open ledge just below Chunuk Bair. The Gurkhas had to fall back to their original position. At day-break on the 10th the Turks under Mustapha Kemal Bey by a desperate and dramatic counter-attack with all reserves, forced back the "New Army" units, which had replaced the exhausted New Zealanders, to the position at The Apex occupied by the latter on the 7th. A supreme chance to shorten the war had passed; there remained three years of human "attrition."

Casualties in the fighting of these two days were very heavy. The British clearance was chiefly down Aghyl Dere.

Clearance, August 9–16

Sazli Beit Dere was No-Man's Land—a very death-trap, into whose "valley of despair" many wounded found their way and were lost.[17] The wounded from the apex of the salient converged for the most part to the central dere, Chailak, and thronged the thoroughfare from top to bottom. On the 9th the situation there, never satisfactory, became again very serious. The officer-in-charge of the advanced dressing station reported—

> More bearers and stretchers are required on the line between here and the beach. 100 bearers with stretchers are necessary. It is no use clearing this station at present, as my line is choked with wounded, who cannot be shifted owing to lack of bearers.

During the morning of this day the A.D.M.S., N.Z. & A. Division, Colonel Manders, was killed. At the urgent request

Colonel Manders killed

of the D.A.D.M.S., the N.Z. & A. Division supplied a fatigue of 100 infantry, who took up fifty stretchers, and clearance was in full swing at the time of the Turkish counter-attack at day-break on the 10th. The heavy casualties from this

[17] An unhappy party of inexperienced British troops became marooned in its depths between friend and foe. It appears that all perished miserably, except two, who some weeks later made their way to the New Zealand trenches, and five others who were then discovered and got in.

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fighting were chiefly British, 500 of whom were evacuated from the head of Aghyl Dere by the N.Z. & A. Division.[18]

On the extreme left no active operations took place after the morning of the 8th. The 3rd Light Horse Field Ambulance bearers carried from the 4th Brigade aid-posts to the mouth of Australia Valley, whence the 4th Field Ambulance bearers relayed to the dressing station of the unit in Walden Grove. Here terraces were cut and three operation tents erected: and here the unit remained, acting as dressing station to their own and the 3rd Light Horse Field Ambulance bearers clearing down Aghyl Dere. It also for some time maintained, with the 108th Indian Field Ambulance, a "clearing post" at the mouth of Chailak Dere. Most cases from Aghyl Dere reached No. 3 pier by this route.

On August 10th a New Zealand advanced dressing station was formed up the Chailak Dere, this being made possible by the relief of "A" section, New Zealand Field Ambulance at Walker's Ridge by the 16th British Casualty Clearing Station. Large fatigues of infantry, now available, finally cleared up the medical situation.

Work of the bearers

Owing to the small front, and in particular to the difficulties presented by obstructions on the route of clearance down Chailak Dere, the collecting by regimental bearers had outstripped to an even greater extent than was usual, the "clearance" by field-ambulance bearers to the dressing station. As at the Landing, regimental bearers not only collected wounded to the regimental aid-posts, but carried them to the ambulance post, and at times past it to the clearing station. Though the total distance to be carried (about a mile) was small, the difficulties were extreme. The obstruction by troops and the preoccupation of the bearers in the work of ministration made clearance slow. Food and water were supplied only by terrible toil. Relays could not be organised; as it was put by the medical officer in charge of the collecting post at the head of Chailak Dere, "things were so chaotic from the 7th to the 11th that it was a case of 'do the best you can' without attempting to follow

[18] From August 9 to 12 a battalion of Gurkhas was commanded by the medical officer in charge, "in a very precarious position, (he) being the only British officer left."

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textbook principles." It was seldom, on any front in the war, that the unaided efforts of the bearer divisions of the formations involved could clear the battlefield during a severe engagement,[19] and in this Battle of Sari Bair combatants could not be spared; there was no reserve of bearers, and even field ambulance bearers were occupied in duties which properly belonged to a casualty clearing station. But the delay was very serious for the severely wounded, who suffered terribly. Only first-aid, and that of a crude kind, was possible up the deres: even the most essential ministrations—of water, food, shade during the day, and warmth during the night—were extremely difficult. Water was terribly scarce; it is doubtful if at any time during the war a shortage was more severely felt by the fighting men, the bearers, and the wounded.

Evacuation: by C.C.S., August 9–10

On August 9th the 13th British Casualty Clearing Station completed its relief of the tent division of the 40th Field Ambulance at the main clearing centre at No. 2 Outpost. The latter unit had dealt with some 750 casualties coming down the Chailak Dere, and, in addition, had formed an advanced dressing station up the dere. Its toils and difficulties were hardly appreciated by the Australian bearer officers, who saw only that the wounded sent down by them received very inadequate attention. The site taken over by the casualty clearing station from the field ambulance was a convenient one: a sandbagged operating-room had been formed, and shelter erected for fifteen to twenty stretcher cases. But the whole area of the station was thronged with wounded. The numbers arriving at the clearing station from both the central and right sectors of this front reached a maximum on this date. In twenty-four hours, from midnight on the 8th, nearly 1,000 casualties were evacuated through the clearing station, and over 700 from the field ambulance dressing station direct to the beach. Some 400 were sent off from No. 3 pier, nearly 1,200 (chiefly walkers) were sent round through the sap to the right, but large numbers of stretcher cases still remained. Indeed at this time the hold-up of stretcher cases both at the foot-hills and on the beach was still terrible. A bearer officer coming down

[19] Assistance by infantry under these circumstances was allowed for in *Field Service Regulations*.

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saw "at least 200 men on stretchers" at the dressing station in Walden Grove, and at the mouth of Chailak Dere "the condition of things was awful, the dere simply a mass of stretchers containing wounded, some of whom had been there for 36 hours."

Evacuation: Beach, August 9–10

The "feeding and dressing post" near No. 3 pier was taken over on the 9th by the 13th British Casualty Clearing Station, and the 2nd Australian Field Ambulance personnel rejoined their unit. This small party had filled a serious gap and had worked for fifty-four hours without relief. At the pier itself matters were even worse than on the 7th and 8th. Embarkation could be carried out only intermittently. The naval embarkation officer was killed; casualties were frequent. But lack of suitable small craft was still the great difficulty. No barges had been allotted.

Most of the cases sent through the sap to the right flank were cleared by the 1st Australian Casualty Clearing Station from the cove. This unit had been strained to the utmost, and put up a fine record. "From the 6th to the 10th" (the commanding officer records) "45 men, of whom more than half were sick, evacuated 4,845." From now onwards No. 2 pier, lengthened to take larger craft, became the centre of clearance, the majority of casualties from the left being thus cleared from the casualty clearing station on "North Beach." No. 3 pier became increasingly dangerous; but the alternative of a mile-and-a-half carry for stretcher cases was so serious that the D.A. & Q.M.G. of the Anzac Corps urged the embarkation officer not to close the pier merely "on account of occasional sniping. . . . They do not as a rule fire on our wounded." On the 10th, 168 lying and 350 "sitting" cases were cleared from it; 486 from No. 2; 431 serious stretcher cases could not be got away. The 13th British Casualty Clearing Station, not at full strength, with very little equipment and with inexperienced personnel, was unable to do much to improve the position it had taken up. On the 11th the "medical embarkation officer" at Anzac Cove was sent round by the Medical Control Officer to organise it. Having with difficulty obtained combatant fatigues, this officer put in hand the erection of sandbag shelters and tents.

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By the night of the 11th the heads of all the deres had been cleared of accumulated cases and, though casualties were numerous, did not again become congested. But in the evacuation of these from the foot-hills there was (the Medical Control Officer reported) "still a lamentable breakdown; cases sent down during the night still lying out in the broiling sun." The Casualty Clearing Station could do little more than clear; attempts at ministration were pitifully inadequate. Wounded were still pouring down from the deres, and a heavy run of sickness had begun. No. 3 pier became impossible by day through sniping, and the situation grew quite out of hand. The G.O.C., N.Z. & A. Division (General Godley) was appealed to in person by his acting A.D.M.S., and by his instructions large infantry fatigues carried the wounded night and day through the "long sap." 209 stretcher and 492 sitting cases were sent off from No. 3 pier, chiefly at night, and some 600 by the sap and beach route to the right. On the 12th the loading station near No. 3 pier, and the clearing posts of the 4th Australian and 108th Indian Field Ambulances, were closed; the Red Cross flag was removed from the pier, and all cases were sent to the right, between 600 and 700 being cleared thus on August 13th. Requests were again made by corps for "one or two runs each night by self-propelled lighter[20] for cot cases from No. 2 Outpost," and this was at length arranged. The 13th British Casualty Clearing Station, now thoroughly exhausted, was relieved at No. 2 Outpost by the 16th, which had hitherto had little to do. From this time onwards the sick exceeded the wounded. By the 14th suitable small craft was available in plenty. The 16th Casualty Clearing Station obtained 100 special bearers to carry to No. 2 pier (now being duplicated) and asked for an ambulance waggon to run at night. Ambulance transport was not, however, at this or any other time found possible at Anzac. If, when the direct route to the roadstead (No. 3 pier) so unhappily failed, vehicular transport could have been used, the ambulance

August 11, Beach still blocked

August 13-14, boats available

[20] These were flat-bottomed, and constructed so as to load direct from the beach.

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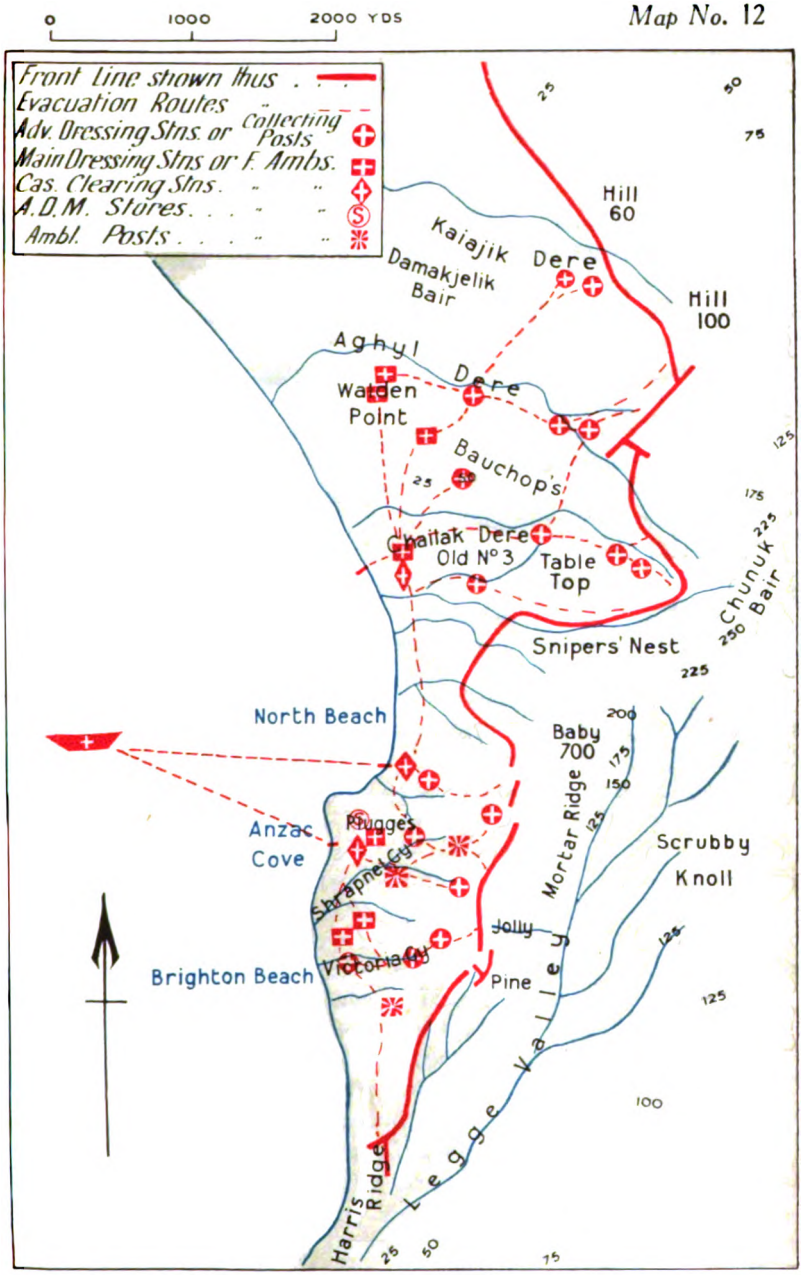

THE ANZAC AREA, SHOWING THE SCHEME OF EVACUATION FROM THE FRONT LINE TO THE ROADSTEAD, END OF AUGUST 1915

Height contours, 25 metres.

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bearers could have been employed on their proper carry—from the front—instead of working between the clearing station and the piers.

During this last phase of the evacuation (on August 11th) the tent divisions of the 1st, 2nd, and 3rd Australian Light Horse Field Ambulances, New Zealand Mounted Field Ambulance, and 1st Australian Field Ambulance arrived from Lemnos, too late to render the assistance which had been so urgently needed and which, except as a relief to other units, was after a few days to a great extent superfluous.

On August 15th the D.M.S., M.E.F., gave instructions that evacuations were to be reduced to a minimum, and that every possible case was to be held in shore, since the lines-of-communication and expeditionary bases were congested. The cause of that extraordinary situation and its results will be seen later. But the prime factors in the unhappy hold-up on the beach and its neighbourhood which have been described in this chapter were, without question, the shortage of suitable small craft allotted for clearance from the beaches to the roadstead and the consequent necessity for the long carry from left to right flank. Into the cause of this it is not possible to enter. It was generally held by medical officers at the Dardanelles—and had been urged by the A.D.M.S., 1st Australian Division, and the officer commanding the 1st Australian Casualty Clearing Station, and represented also to the War Office by the D.M.S., M.E.F., and P.D.M.S.—that the medical service should have its own small craft sufficient for serious cases in heavy rushes. These would, under ordinary circumstances, have sufficed for total clearance. In this connection it is only fair to note, first, that in this matter, as in others throughout the campaign, the navy made its intentions clear, and did not promise on paper what it could not perform in effect: second, that the decision as to any prior claim on the limited small craft lay not with it but with the combatant branch of the army.

Causes of block on Beach

The difficulty of dealing with the cases held up had been accentuated, as already stated, by the too late arrival of the nursing units. The strategy and tactics of war consist in concentrating the necessary troops at a required point at a

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given moment, and the same holds good for those of evacuation. In this fundamental principle of war the medical service in this battle failed—possibly through no fault of its own. "Success" or "failure" in the evacuation of wounded from a heavy engagement is so overwhelmingly dependent on the military situation and combatant co-operation that judgment of the efficiency or inefficiency of its conduct is always a difficult matter. In these peculiarly involved amphibious—and unsuccessful—operations, such appraisement can hardly be attempted. It is perhaps desirable to emphasise the fact that the presentation of events attempted in this chapter has its necessary restrictions. Little account has been taken of the work of the medical service of either the British or the New Zealand formations involved, and none of the heavy evacuation from the Suvla operation; which—though its circumstances were far easier than at Sari Bair—almost monopolised the resources of the navy in small craft.

The roadstead after the 8th was not again left without a hospital ship. This improvement, however, was effected only by the expedient of retaining many of the "white" ships for ferry service within the area of operations and evacuating to the bases by "black" ships. No manipulation of hospital ships could make up for an actual shortage.

Orderly clearance established, August 14–31

With the acceptance of "stalemate" by both sides, the newly-won area was rapidly organised; roads were made in the beds of the deres; the "long sap"[21] between No. 2 Outpost and North Beach was widened to take mule carts; "supply" was organised; the water problem, though still very serious, was eased by the development of local wells. With the resumption of trench-warfare, collecting and clearance became normal. The front gradually consolidated into a defensive line of entrenched positions, mostly on steep hillsides, forming a salient with its point at The Apex.[22] The Anzac Beach area was made an advanced base under a commandant, but no A.D.M.S. was appointed. Instead, on the 14th the officer commanding the 1st

[21] Necessitated by the enemy's control of a wide area of the beach from Snipers' Nest and the heights near the Nek.

[22] The situation of the field ambulances and routes of evacuation will be clear from the map at *p. 316*.

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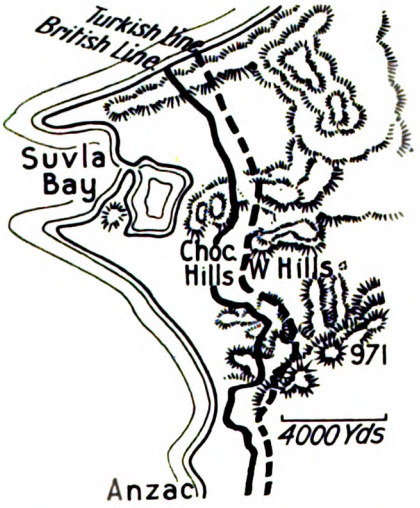
Australian Casualty Clearing Station[23] replaced the A.D.M.S., M.E.F., as "Medical Control Officer"—a nondescript and almost meaningless appointment—administering under the D.M.S., M.E.F., the three clearing stations and the evacuation from the beaches. Technically the advanced base should belong to the lines of communication, but the delimitation of medical responsibility in this campaign was always hopelessly confused.

Sick-rate soars.

The sick-rate now exceeded the woundings, the A. & N.Z. Army Corps wastage for the week ending August 20th being sick 9.04 per cent, wounded 1.55. The collecting, the clearance to dressing stations, and the evacuation through the 16th British Casualty Clearing Station were becoming systematised, the centre of clearance to the roadstead being definitely at Walker's Pier.

Hill 60 Action

The Anzac line was now linked with Suvla. Everywhere, however, the enemy held the heights. The flat country and beach were not only exposed to shell-fire but controlled, over a large proportion, by the enemy at Snipers' Nest. A deep enemy salient almost severed the position from Suvla. To reduce this, capture a number of wells, and improve the Suvla line, which was still unsafe in spite of casualties exceeding those at Anzac, combined operations were undertaken on the 21st and 28th. The part to be taken by



The opposing lines north of Anzac, end of August, 1915.

[23] Lieut.-Col. W. W. Giblin, A.A.M.C. The A.D.M.S., M.E.F., was Colonel A. E. C. Keble, A.M.S.

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the Anzac Corps was the capture of "Hill 60"—a low rise terminating a ridge from Damakjelik Bair—and of certain wells which, in view of the serious nature of the water problems, it was of the utmost importance to possess. For the operations on the 21st, New Zealand mounted rifles and Connaught Rangers, together with a force of 500 selected as fit for fighting from the 1,500 remaining in the 4th Australian Infantry Brigade, attacked from the Damakjelik line. The result was inconclusive, the cost heavy. In this action the 2nd Australian Division (18th Battalion) received its baptism of fire, from which only 367 out of 750 emerged unscathed. The 4th Brigade lost 173; the total casualties were 1,302. For the action the bearer squads moved out behind the troops at five-minute intervals; the 4th Field Ambulance bearers served their own brigade, the 3rd Light Horse Field Ambulance the New Zealanders. The greater part of the collecting had to be done (as almost always) at night, but exceptionally fine work is recorded of regimental officers and bearers. The co-operation between the light horse bearer-divisions and the New Zealand regimental officers received special commendation. The 5th Australian Field Ambulance, which was the first to arrive from Egypt of the three ambulances of the 2nd Australian Division (5th, 6th, and 7th), sent fifty bearers to help the 4th. Their tent division, as its diary records, "went into action and pitched an operating tent in Walden Grove." The 39th British Field Ambulance cleared 200 Australian wounded.

Local Pier built

A special pier had been built for the operations opposite Walden Point, and the Medical Control Officer had been warned to expect 500 casualties, "to be directed to the new pier." Clearance was done direct from this by field ambulances at night: the clearing station had very little to do. Everything, it is recorded by the Medical Control Officer, went without a hitch. The endeavour to consolidate the ground won on Hill 60 culminated in a final effort on the 28th and 29th to capture the position. The 3rd Light Horse Brigade fought its last infantry fight—a very terrible one. The 4th Infantry Brigade also fought its last fight on Gallipoli. The condition of this formation was deplorable. The regimental

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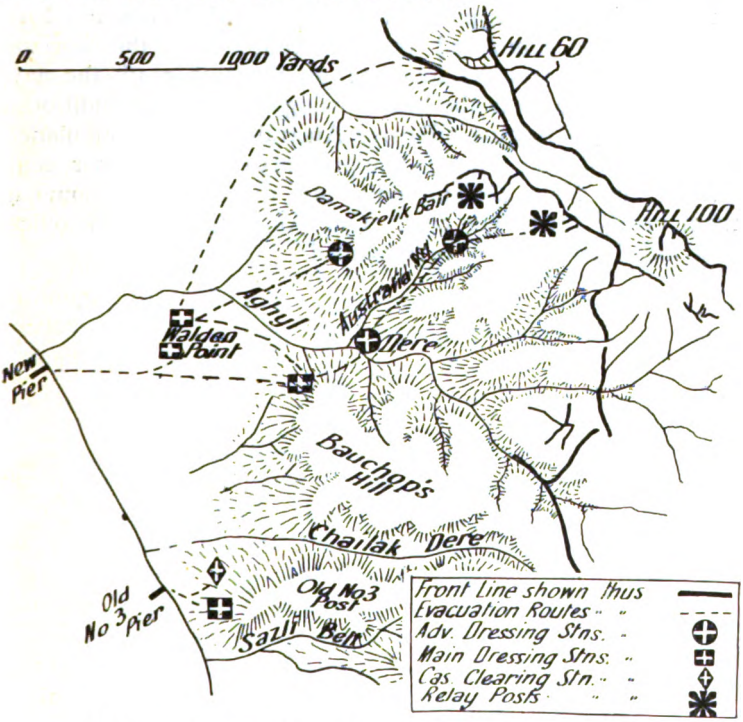
medical officer who took the place of Captain J. F. G. Luther (killed on the 25th) in the 15th Battalion, has recorded his impressions thus:—

> The condition of the men of the battalion was awful. Thin, haggard, as weak as kittens, and covered with suppurating sores. Practically every man had dysentery. The total strength of the battalion was two officers and 170 men. If we had been in France every man would have been sent to hospital.



Scheme of evacuation from Hill 60, August, 1915.

The clearance and evacuation of casualties proceeded without incident. Losses in regimental bearers were heavy. The operations were a true anti-climax, unhappy in action, inconclusive in result; Hill 60 remained divided between the two sides.

By the beginning of September medical organisation of the new areas was complete; the ambulances were established

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in satisfactory positions, clearing systematically to the 16th British Casualty Clearing Station, which could now accommodate some 300 cases in marquee tents. Evacuation was concentrated entirely on the piers below Walker's Ridge, the clearing station at No. 2 Outpost acting as rest station and relay post, with 100 bearers provided for the purpose; motor ambulances or other forms of vehicular transport were found impracticable. The problem of disease, always in the foreground, now dominated the situation. On the horizon, moreover, new troubles loomed: on September 4th the navy was "unable to clear the beach owing to weather conditions."

During the August offensive Australian Field Ambulances lost in killed and wounded approximately fifteen per cent: British and New Zealand units lost more heavily, some of them nearly thirty per cent. One Australian medical officer was killed and two were wounded.

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CHAPTER XV

THE SUPREME EFFORT: LINES OF COMMUNICATION

In the August offensive, in order to economise ferry craft, the evacuation of wounded to the bases had been made to hinge on Imbros. Through bad weather and shortage of hospital ships this scheme broke down, resulting in the immediate accumulation of cases at Lemnos, Imbros, and even on the Peninsula. At this juncture the base in Egypt also was reported full. Immense numbers of sick greatly increased the problem of transportation. It was solved by sending large numbers in big ships direct from Lemnos to England. Although, through these occurrences, the local scheme of quick return to duty was upset the clearance was on the whole prompt and adequate.

* * *

Of 51,867 casualties, sick and wounded, that left the Peninsula between August 7th and September 8th, 23,686 were from the Anzac front. The collecting of these casualties as far as the beaches, and their clearance thence to the Anzac roadstead, have been followed through. Their movement along the lines of communication is next to be traced as part of the conjoint stream formed by tributaries from the three fronts, intermingling at Imbros.

In the previous chapter there were seen, at various junctures, the effects of a more distant obstruction to the flow toward the base. The causes of that obstruction must be sought along the course of the stream, on the lines of communication, in the local reservoirs of accommodation at the advanced and intermediate bases (Imbros and Lemnos), and at the scene of final distribution and disposal, namely, the expeditionary bases, Egypt and Malta.

According to the scheme of the Director of Medical Services, taken over by the Principal Hospital Transport

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Officer, the next stage in the system of evacuation and the intended distributing centre for casualties from all three fronts was the little open harbour or cove at Kephalos, where the 25th British Casualty Clearing Station was established on shore. The reason for the interposition of this stage—practically a subsidiary base and advanced "Head of the Lines of Communication"—between the beaches and Mudros Harbour, was that it eliminated the sixty miles of sea-transport to Lemnos, which entailed a round trip of some twenty-four hours as against six or eight hours for the Imbros trip. The shortage of hospital ships and sweepers, and the consequent desirability of dispensing for a time with the medical "ferry service" of sweepers to Lemnos, made this arrangement appear advisable. This harbour had been protected with torpedo nets, and a breakwater had been formed by sinking two vessels.

The "Porter-Ellison" scheme

Under the "Porter-Ellison" modification of the scheme, the trawlers were to transfer light cases (classified "under 28 days") to the 25th Casualty Clearing Station at Kephalos, or, by a special ferry service of "carriers" and sweepers, to Lemnos. More serious cases, for the expeditionary bases, were to be transferred from the hospital ships to "ambulance carriers"[1] ("black" ships), which, when full, were to sail for Egypt or Malta, the choice depending on the amount of accommodation thence reported to the Inspector-General of Communications. Still more dangerously wounded would be retained by the hospital ships and taken to the bases as opportunity should present.

The first distributing centre—Imbros

To promote the retention of light-cases in the immediate zone of operations, and to provide for the rapid clearance of severe and serious cases to the base hospitals and their effective treatment in the meanwhile, the D.M.S., M.E.F., had ordered that all casualties should be classified into "Mudros" and "Base," and his arrangements were made for

[1] A new designation given about this time to the transports temporarily staffed and fitted at Lemnos for the carriage of sick and wounded. They should not be confused with the "hospital carriers" (*see p. 223*), which were usually painted white, in order to secure protection under the Geneva Convention.

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distribution accordingly.[2] The first opportunity, however, for such classification was often in the roadstead or at Kephalos, since the first stage at which treatment, other than first-aid, could possibly be given was in hospital ship or "black" ship, or in hospitals at the intermediate base.

Scheme amended but thwarted by weather

At the very outset the difficulty of intercommunication between the evacuating centre at Imbros and the Lines of Communication Headquarters at Lemnos had necessitated an amendment of the scheme. All "black" and hospital ships, instead of sailing direct to the expeditionary bases, were ordered to report first at Mudros Harbour, which thus remained the final centre for disposal. Sundry re-distributions were also carried out at Mudros.

By the selection of Imbros, with the insignificant little cove at Kephalos "in two out of every three days unsuitable for transhipment," and that at Aliki Bay, though more sheltered from the prevailing north-west winds, open to submarines, hostages had been given to fortune and, through the chance of the weather, soon became forfeit. Facilities at Kephalos in the way of piers were even more primitive than at the Peninsula. To transfer cases, vessels had to be brought alongside each other; distribution was otherwise possible only by the medium of small craft. On August 7th there were only two hours, during which the hospital ship *Sicilia* cleared her wounded, when it was possible to transfer direct from one large ship to another at Kephalos, although, chiefly through the medium of small craft, 2,500 cases were cleared to "black" ships from trawlers.

Early on the 8th four hospital ships from various roadsteads arrived at Imbros full. Transfer at Kephalos was at the time impossible. The hospital ships *Delta* and *Dunluce Castle* from Anzac were redirected to Mudros to clear: the others were sent with two "black" ships to Aliki Bay, where also, however, transfer was impossible. Casualties continued to arrive at Imbros in sweepers and trawlers, and, including those in the *Delta* and *Dunluce Castle,* approximately 3,000 wounded passed through on the 8th. On the 9th 3,000 cases

[2] It may be noted that this would have involved the retention of some 50 per cent—an obvious impossibility.

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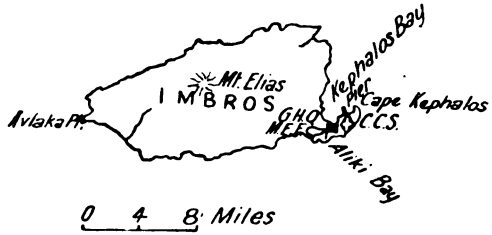
were handled at Kephalos. Part were evacuated to the base in two "black" ships, and the rest retained at the clearing station.



The flow through this "bottle neck" was maintained only by the utmost exertions of all concerned, naval and military, and the scene at the little cove has been described as a very remarkable one. Great difficulty was experienced in the classification and effective distribution of cases. Many were found by the representative of the D.D.M.S., Lines of Communication, to be very slight (it will be recalled that most of the serious cases at Anzac were at this time held up near the Beach or in the deres). Some of the lightly wounded, on reaching Imbros, were transferred to the 25th British Casualty Clearing Station, but many were passing through.[3] A request for a convalescent dépôt was made by the "staff officer for I.G.C." At the same time the seriously wounded suffered greatly—as they always did—through the disorganisation and delay in their progress through to the base where they would obtain effective treatment. Through the fact that Lemnos was now made a clearing centre as well as Imbros they were subjected to many transfers. Many were transported, and for four to five days treated, in the hurriedly equipped "black" ships (now being termed "ambulance carriers"), which were often greatly overcrowded, being, for example, staffed for 800 while carrying 1,000. The difficulty of working this very elaborate system was much increased by the absence of wireless communication between vessels and shore and by the fact that the Principal Hospital Transport Officer made his headquarters not at Imbros in the flagship, or with the D.M.S., M.E.F., at General Headquarters, or at Lemnos with the

Many light cases pass through

Isolation of P.H.T.O.

[3] The Principal Director of Medical Services at Egypt found many cases "fit for duty in 48 hours."

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Inspector-General of Communications and Principal Naval Transport Officer, but in the yacht *Liberty*. Here, though personally "mobile," he was without wireless for either receipt or transmission of messages, and was therefore cut off from communication with the various centres of activity and rendered unable to meet rapid changes in the situation by appropriate adjustments. In fact he placed himself in much the same position as that in which the D.M.S., M.E.F., had, against his wish, been placed at the Landing. For these various reasons Surgeon-General Birrell, though not now responsible, recommended to the D.Q.M.G. on the 8th that Mudros should again be adopted as the primary clearing centre. But deficiency of hospital ships and sweepers made this course impracticable.

On the 10th, the wind having dropped, the cases were handled in Kephalos Harbour and rapidly passed through. Administration was facilitated when the Embarkation Medical Officer (representing the D.D.M.S., Lines of Communication) at Kephalos received from the P.H.T.O. authority to act for him. The P.H.T.O. himself was increasingly occupied with affairs at the next stage farther on—Mudros—where there had developed a serious difficulty of which the influence was felt back at Imbros on the 11th.

Shortage of "Black Ships"

Based on the policy of retaining at the front sufficient "white" ships to man the roadsteads, the "Porter-Ellison scheme" involved, in addition to a rapid ferry service from the beaches to Imbros, a regular supply of "black" ambulance carriers, properly fitted and staffed, for evacuation to the bases. On the 11th, however, through causes of which the available records give no clear indication, the supply of these ships fell short, and some of the wounded were, therefore, taken direct to Mudros by sweepers; the 25th Casualty Clearing Station on shore, however, received 500 cases from trawlers and on the 12th "expanded to take 1,000 in emergency." Throughout the 13th four hospital ships awaited "black" ships, transhipment not being effected till nightfall. On the 14th the climax was reached: no "black" ships at all were available, and by the night of the 15th, though sweepers and hospital ships were now taking many cases direct to Mudros, nearly 1,500 were being held in the 25th Casualty Clearing Station, and of these

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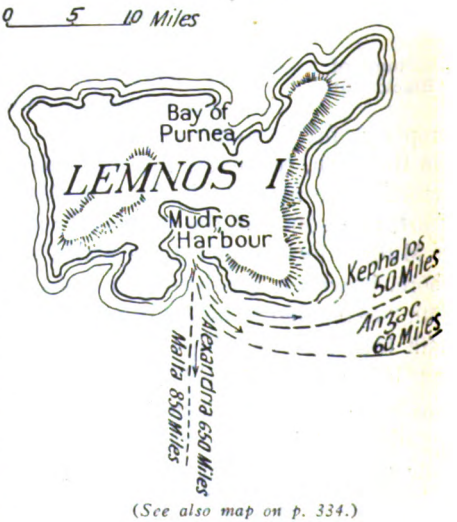
no less than 1,000 were put in one "black" ship on the following day. On the 16th it was decided, on the recommendation of the I.G.C., that "white" hospital ships should all proceed direct from the beaches to Mudros as soon as they were full, "trawler cases only to proceed to Imbros."

But by this time the rush of wounded had ceased. Imbros now became only an accessory "advanced base"—a handy centre where lightly wounded, brought by trawlers, were retained within army area, or transferred to "black" ships which came up only as required. This no doubt would have been its rôle from the beginning, if medical transport had been adequate to permit of the full use of Mudros. From August 7th to 13th (inclusive) 12,497 casualties had been cleared through Imbros to Mudros; during the following week the number was less than 5,000.

Lemnos—its two functions

The point of view must here be shifted to Lemnos, the head of the Lines of Communication and now also intermediate medical base. Here the kaleidoscope of events during this strenuous time makes a moving picture which, if less poignant and stirring than that at the front, and less tumultuous than the scene in the little crowded cove at Kephalos, is yet full of action and interest.

Events at Lemnos must be visualised from two points of view — that of the harbour, the head of the Lines of Communication, where casualties were disposed of in accordance with the "accommodation-state" at the bases: and that of the intermediate base, where, it had been hoped, a considerable proportion of the wounded would



(See also map on p. 334.)

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be retained. Though, in the event, the hospitals at Lemnos had very slight influence upon the situation during the actual offensive, the development of the intermediate base presents features of great interest, enhanced for Australian history by the fact that, out of a total of 7,833 cases received on shore during the month, 5,585 were treated in the Australian hospitals.

The transit of the stream of casualties through Mudros Harbour, as through a "lock," will first be followed: the use made of Lemnos as a local reservoir will be considered later.

As first laid down, the medical plan had involved the practical elimination of Lemnos as a clearing centre. Mudros Harbour was to be a dépôt where the transports allotted by the Admiralty would, as they arrived, be equipped, staffed with medical officers, nurses, and orderlies, and sent up to Imbros as required, their departure thence to the base being directed from the naval and military administrative headquarters at Lemnos. As has been seen, however, the plan quickly broke down and Mudros again became the centre from which sick and wounded were distributed. The system of entrusting to the authorities in Egypt the decision as to which cases should go on to Malta finally ceased—to the great advantage of the sufferers themselves. The control of hospital ships in the Mediterranean—formerly exercised by the Egyptian command, but in July taken over by the P.D.M.S. (General Babtie)—now passed to the P.H.T.O. (General Porter),[4] who was given executive authority corresponding to that hitherto exercised by the D.Q.M.G. (General Ellison), together with much of the medical responsibility of the D.M.S., M.E.F. (General Birrell), and the D.D.M.S., L. of C. (Colonel Maher). The Principal Hospital Transport Officer, acting directly under the orders of the Lords of the Admiralty as given through the Naval Medical Director-General, worked locally in conjunction

(1) As distributing centre—control by P.H.T.O.

[4] The scheme of "sailing to time-table" proposed by the P.D.M.S. was not put into force, and the D.M.S., M.E.F., was blamed for the delay. It must be considered very doubtful whether it would have worked, contravening as it did the principle of maintaining a reserve. It was a matter wherein medical ideals and military advantage were in conflict.

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with the "Naval Transport Officer" at Lemnos and the Inspector-General of Communications, and was assisted by his own "hospital transport officers" at Alexandria and Malta, and (in *liaison* with the I.G.C.) in the *Aragon*. He took up the troopships earmarked in England as ambulance carriers for the operations and fitted them, according to requirements, from the medical and nursing personnel in the dépôt ship, the base dépôt of medical stores at East Mudros, and the ordnance storeship; he directed the movements of these and of the hospital ships: and to a great extent he controlled the policy of the sea transport of sick and wounded for the Mediterranean seat of war.[5] Theoretically, the D.D.M.S., Lines of Communication, remained responsible for the proper distribution of cases and particularly for disposal at the intermediate base. But he was still without a launch, and there was also a shortage of small craft for transfers to ships or shore. Co-ordination of work between the P.H.T.O., the D.D.M.S. for Lines of Communication, and the assistant-directors of medical services on shore was, it is clear, very imperfect. All "S.M.O's" of "black" ships, and officers commanding hospital ships, reported to both naval and military administrators, being responsible to the former for returns and to the latter for efficiency.

When the offensive began on August 6th, only eight hospital ships were available in the actual sphere of operations.

Early blockage on L. of C.

There is no doubt that the policy instituted by the P.H.T.O.—namely, of retaining eight hospital ships at the front—was justified and opportune. Without this prompt and firm decision the roadsteads would soon have been left with only trawlers and sweepers—a contingency of which the results can be judged from its occasional occurrence. A few additional hospital ships were provided for the operations; but, as at the Landing, a very large proportion of the wounded were sent on "black" ships, of which, up to August 14th, thirteen had been taken over for medical purposes since operations began. From August 7th to 11th (inclusive) 13,800 casualties were conveyed to Mudros Harbour, either

[5] Red Cross stores were put on board by the British Red Cross Society, which was now working with its own launches.

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direct or through Imbros, by hospital ships and "black" ships with "some half-dozen trawlers and four sweepers." But by August 10th the difficulty already referred to in connection with the work at Imbros was becoming pronounced. Through insufficiency of transport, clearance beyond Mudros and Kephalos Harbours was becoming difficult. The hospital ships at the front held a large number, but could not be permitted to run to the base, and, as has already been stated, on the 11th the supply of "black ships" to Imbros fell short.[6]

Decisive blockage at bases

But a still more serious check was now threatened to the onward flow of the stream of casualties which—in spite of recurring local hold-ups at the heads of the deres, on the beaches, in the roadsteads, at Kephalos, and in Mudros Harbour itself, and of the general delay brought about by the duplication of the clearing centre—was now surging for outlet to the expeditionary bases. On August 12th warning was received from the P.D.M.S. in Egypt that already the limit of accommodation there was almost reached. Malta, which had apparently been stinted of medical personnel and was unable at first to expand, could help to the extent of only a few thousand. On shore the hospitals at East and West Mudros could take no more, and their expansion was at the moment impossible. All the ships in Mudros Harbour were full: the casualty clearing station on Imbros was glutted; cases could not further be retained on the Peninsula. On August 13th the Inspector-General of Communications was notified that Egypt and Malta were full. Saturation point had in fact been reached.

The result was a complete hold-up of all distribution in the Levant which could only be met by a new and far-reaching

[6] As already mentioned, the available records, though carefully searched, fail to indicate with certainty the cause of this shortage. The official explanation merely attributed it to "naval reasons." Several factors, however, seem to have co-operated. The Admiralty was loath to relieve for medical purposes transports other than those actually specified. The non-arrival at Mudros of some of these and the unsuitability of others, submarine activity (such as the sinking on August 13 of the *Royal Edward* with the loss of over 800 persons, including a large number of medical personnel), temporary shortage of medical personnel and shortage of harbour transport (which caused delay in the fitting-out of ambulance carriers), all appear to have operated. Of the 25 transports earmarked by the Admiralty for the operations, 9 were fitted out in Egypt or at Lemnos before those operations began. Of the remaining 16, 8 were not available and could not be fitted in advance, 4 were found totally unsuitable, and one was used as a dépôt ship for medical personnel; the remaining 3 had been fitted before they arrived on the 11th.

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scheme of clearance. It happened that in Mudros Harbour lay a 45,000-ton Atlantic liner, the transport *Aquitania*. Twelve medical officers—all that could be raised, including the senior consulting surgeon in the M.E.F. (Colonel A. W. Mayo-Robson, R.A.M.C.) and the second-in-command of No. 2 Australian Stationary Hospital (Major G. W. Barber, A.A.M.C.)—with such nursing staff, orderlies, and equipment as were available, were put on board; the War Office was notified, and, with 2,400 sick and wounded (450 Australian and New Zealand) the great vessel sailed on the 15th as a "black" ship direct for England. "The pressure of cases on ships and shore was so great that many were sent off who need not otherwise have gone." The *Franconia* (18,000 tons) then took 900, and others soon followed (these also being "black" ships); and this new channel soon drew into itself a large part of the flood of sick and wounded, dammed back at the bases. The situation was relieved as if by the opening of flood-gates. The instructions which, as was noted in a previous chapter, were issued by the D.M.S., M.E.F., to medical administrative officers on the Peninsula that cases were to be held up owing to the bases being full were soon rescinded. A policy of rapid clearance from the intermediate base hospitals was made possible, instructions having been issued that no case should be retained longer than twenty-one days. Large numbers of beds were thus freed. The rush of wounded was now subsiding, but there was beginning a flow of sick which was to confound all calculations and to bring problems of evacuation as difficult as even those that have been described.

Floodgate to England opened

For the week ending August 22nd 10,191 sick and wounded passed through the harbour of Mudros, 4,795 to Egypt, 4,136 to Malta, 1,260 to England. For the Hill 60 operations—of which for once warning was given in good time—the short ferry service to Kephalos of hospital ships, which in addition to trawlers transferred their wounded there to "black" ships, again became necessary through lack of transport sufficient to maintain a ferry service to Lemnos. The tremendous wastage was now bringing vigorous protest from

Fighting of August 21—Imbros again used

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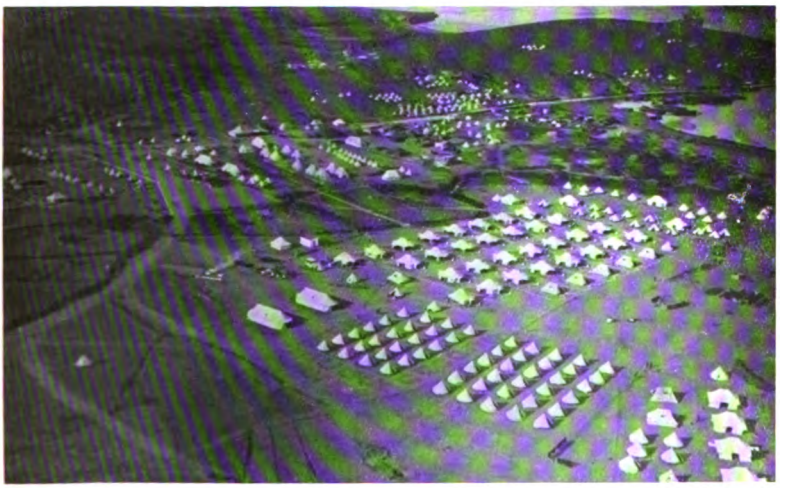
50. THE FORESHORE BELOW No. 2 OUTPOST WHERE THE WOUNDED WERE ASSEMBLED DURING THE AUGUST OPERATIONS

Photographed in October 1915. The track to the site of No. 3 Pier may be seen: also the tents of the 16th British Casualty Clearing Station.

Taken by Chaplain the Rev. E. N. Merrington.
Aust. War Memorial Collection No. C4183.



51. GENERAL VIEW OF THE CASUALTY CLEARING STATION (EMERGENCY HOSPITAL) AT IMBROS, AUGUST 1915

Photographed from an aeroplane.

Admiralty Official Photograph.
Aust. War Memorial Collection No. G678.

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52. The first bivouac of No. 3 Australian General Hospital at Lemnos

The site is Turk's Head, overlooking Sarpi inlet at West Mudros, 5th August, 1915.

Taken by L/Cpl. A. W. Savage, No. 3 A.G.H.
Aust. War Memorial Collection No. J1366.

53. Australian nurses at No. 3 Australian General Hospital, West Mudros, September 1915

Taken by L/Cpl. A. W. Savage, No. 3 A.G.H.
Aust. War Memorial Collection No. J1397.

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formations on the Peninsula, which objected to the evacuation of light cases to the base: and—the fact having at last become recognised at General Headquarters, M.E.F., that, however desirable, it was impossible in the rush of battle to classify casualties or retain light cases on Gallipoli—special preparations were made for sifting out such cases at Imbros, where "every case is (now) to be examined." The 25th British Casualty Clearing Station "expanded" to take 2,000 light cases.

Once more weather interfered with transfer. On the 22nd there were taken in by the 25th Casualty Clearing Station 1,700, and on the 23rd over 2,300, cases of all degrees of severity, "all of whom," it is said, "were attended to, fed, and made comfortable"—a very remarkable feat by this fine British "regular" unit. Transhipment from hospital ship to ambulance carrier at Aliki Bay was resorted to, and on the 24th it was possible partly to clear the C.C.S. From August 26th the ferry service of trawlers to Kephalos Harbour was stopped, and Imbros again ceased to function as the distributing centre. The 25th Casualty Clearing Station remained as a camp hospital for British units which from time to time came to Imbros on relief from the Peninsula. The work done by the medical staffs of the trawlers, which included many naval officers and ratings as well as members of the R.A.M.C., had been very arduous. For example, it was reported by the P.H.T.O. that two naval surgeons had between them transferred "without hitch or accident" 5,000 wounded from the beaches to Imbros.

Late August—casualties flow to England

The disposal of these casualties is interesting. Since August 13th Egypt had, in respect of the special requirements of the operations, become a comparatively unimportant factor in the medical situation. Malta had only begun a belated development. During the week ending August 31st, out of 12,659 that left Mudros Harbour no less than 7,869 went direct to England in three hospital ships and nine "black" ships; 3,455 went to Egypt. By this time the hospitals at West Mudros were making headway. The first week in September saw the last of the battle casualties from Hill 60. 6,854 left the beaches, 6,500 were sent from Mudros Harbour

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to the bases in four "white" and six "black" ships; among the former was the New Zealand hospital ship *Maheno*, which the P.H.T.O. reported "arrived just in time to fill a gap on the beaches." The systematic use of the "black" ships was thenceforward in abeyance, and the evacuation of sick and wounded became based on a fleet of hospital ships which, through unforeseen circumstances presently to be described, was to reach dimensions hitherto unapproached in history.

Lemnos—(2) Accommodation and treatment

Attention must now be directed to Lemnos Island itself, as the intermediate medical base. Lemnos had at first been intended to serve as a local reservoir capable of rapid expansion to relieve pressure of light cases only—*i.e.*, those classified as likely to be well within twenty-eight days. These, after the clearing station at Imbros was full, would reach Lemnos by sweeper or special ambulance carrier and be accommodated in the "expanded" stationary hospitals. The outlook was, however, changed by the arrival of a great general hospital, the 3rd Australian—though on the very eve of the operations—and, soon after, of smaller but highly organised British and Canadian units. The policy of the P.D.M.S. of developing Lemnos as a first-class hospital centre had, through his influence, not been interrupted for the offensive. Advised by him to make arrangements as if "they were to last for ever," the D.M.S., M.E.F., who himself favoured the policy laid down by G.H.Q., M.E.F., in July of using Lemnos for light cases only, was overborne

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The result of the advice—in the abstract excellent—was a situation almost without parallel in the war. There was presented the extraordinary picture of that most highly organised of army medical units—a general hospital—whose purpose and staff are equivalent to those of a great civil general hospital and its standard of treatment and aftercare similar, struggling during the actual progress of operations to establish itself under conditions that would have been crude for a field ambulance, and at the same time undertaking all forms of urgent and imperative surgery and admitting cases of sickness of every kind and every degree of severity.

With these operations, indeed, the medical situation at Lemnos takes on a new aspect, of which the most significant feature is the appearance of members of the female nursing services of Great Britain, Canada, and Australasia regularly taking part in large number in medical ministrations on sea and shore. Of these, by the end of August, over 200 were at work in the hospitals on Lemnos.

The situation on the shores of the harbour at the opening of the August operations has been described in the preceding chapter. The mismanagement which in England put the splendid equipment of No. 3 Australian General Hospital in another ship was peculiarly unfortunate. Although shortage of tents and water was the greatest anxiety then besetting the Inspector-General of Communications, No. 3 A.G.H. had, until August 21st, to rely for its barest essentials upon his resources, which were taxed to the utmost. Of nursing equipment there was little, of eating utensils a bare sufficiency for patients. Having landed on the 5th, the male staff had by the 9th cleared the area of rocks, done some roadmaking, and erected, somewhat promiscuously, a few bell tents and marquees and an operating tent. On this date the female nursing staff and the first batch of 150 cases arrived together. Mattresses were available, but not beds. Cooking and sterilising were for a time done by spirit lamp, through lack of kerosene for the primus stoves. The surgical instruments arrived with the unit, and the surgical staff—with the leading surgeon in Australia (Sir Alexander MacCormick,

Trials of No. 3 A.G.H.

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a consulting surgeon in the British Expeditionary Force), at its head—were much more than adequate for all requirements in this direction. In the meantime the No. 2 Australian Stationary Hospital, efficient and experienced in the ways of Lemnos, and with its own equipment, was fairly ready by the 6th, admitted 100 on that day, and by the 13th was treating 763. The general hospital on the same date was treating 900. Each was now filled to the utmost that the equipment of the general hospital—or the personnel of the stationary—would permit. The convalescent dépôt, holding 850 light cases, was also "full." At East Mudros No. 1 Australian Stationary Hospital and the two British stationary hospitals with large capacity but already congested, were unable to admit more. So far as the operations were concerned, Lemnos, after receiving some 4,000 cases, had "shot its bolt."

Nos. 1 and 2 A.S.H.

The crisis on the Lines of Communication synchronised with the close of the offensive. From now onwards wounded decreased, sick increased. On August 16th nurses from the 3rd Australian General Hospital replaced at the stationary the personnel of the tent division of the 30th British Field Ambulance, which left for the Peninsula. On the 17th Nos. 1 and 3 Canadian Stationary Hospitals (with female nurses) and No. 18 British (without them) were landed at West Mudros; each was equipped and staffed for 400 cases. On the 21st the equipment of No. 3 Australian General Hospital arrived, the hospital was reorganised, and tents were re-erected in more exact alignment.

Further development of Lemnos as medical centre

On August 22nd there was accommodation on Lemnos for 5,050. By the beginning of September the hospital site on "Turk's Head" was beginning to assume the appearance proper to a large hospital centre. Roads had been built by Egyptian labour, a condenser had been installed and a reservoir built, and the hospital water-carts now met a water main advancing to reticulate the whole hospital area. Motor transport was arriving. In the Australian general hospital a pathological department had commenced, in a tent, work

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which was to become historic. X-Ray and ophthalmic departments were now "going strong." But the surgical crisis had passed; the fine surgical staff and team had been almost wasted.[1] A special "enteric block" had by this time been opened, and the hospital entered on a period of important work in this department.

Already, however, happenings ominous of future trouble are recorded. The hospital site had been grossly fouled by the Egyptian labourers before the arrival of the units. The sanitary arrangements at West Mudros, and perforce in the hospitals, were at first crude to the degree of futility—as a home of flies Lemnos was held by some to have surpassed Gallipoli. Writing on August 21st to the acting D.G.M.S., Australia, the officer commanding No. 3 General Hospital (Colonel T. H. Fiaschi) reported in that unit "an epidemic of muco-enteritis which seems to attack every person in this place." By the beginning of September a number of the staff had been evacuated. It was by now recognised by the staff that the conditions on the island were anything but easy; as early as August 25th the Inspector-General of Communications had discussed with the P.D.M.S. preparations for meeting the winter conditions there, which were likely to be especially severe.

Sickness infests the island

The conditions under which the nursing sisters worked, both now and for some time later, at Lemnos, were more crude than any met with afterwards, perhaps than any in the war. The physical discomforts were great; the heat was intense. Bell tents they had, mattresses and bedding and "hard" army ration, but little else. Facilities for personal cleanliness were primitive. But it was chiefly in connection with their professional work that the women were tested to the utmost. Space will not permit of an account of the difficulties that were encountered before a standard of ministration approaching the ideal for the nursing service could

Work of the nursing sisters

[1] By Sept. 2 there had been performed 18 trephinings, 3 sections, 21 amputations, and 12 eye operations. The X-Ray department, opened on the 30th, had taken negatives of 48 cases.

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be reached; but, in the almost total absence of nursing equipment, linen, and means of cooking, and the scanty supply of medical comforts, they are not difficult to imagine.

It is clear, however, that the training in the nursing profession, severe beyond most in its standard of toil, self-discipline, and resource in compelling order out of chaos, enabled these trained women to adapt themselves (as they have often before) to circumstances, bend to clearly-recognised ends such means as could be found, and in a short time obtain a comparative mastery of the situation. In the "wards" and operating theatre the medical officers soon found that, while some of the amenities which they had been accustomed to require for their cases were perforce lacking, the essentials of nursing had been carried out, to wit, cleanliness, care of the skin, attention to the calls of nature, careful feeding, dressing of wounds, and, withal, the ward discipline that makes effective ministration possible. Whatever arguments may be adduced to urge the impropriety of placing so complex a unit under such primitive conditions, inability of the nursing service to rise superior to the circumstances is not one.

Partial failure in purpose

So far as the scheme of evacuation was designed to facilitate the return to duty of light cases which were to be retained for treatment at Lemnos, its success was only partial. The urgency of the requirements connected with evacuation permitted, during these operations, little systematic attempt at replacement of the huge wastage by return of the recovered to duty. During August, however, a details camp supplemented the activities of the convalescent dépôt; it was not till September that conditions allowed the new policy concerning return to duty to be applied in some measure to the intermediate base.

Summary—conditions better than at Landing

To summarise—the total casualties in sick and wounded in the Dardanelles during these operations up to September 8th was 51,867; during August they were 45,359, distributed—on twenty-six "white" hospital ships and thirty-three "black" ambulance carriers—as follows:—Egypt 18,184, England 9,382, Malta 5,374, Mudros 7,833, with 4,586 (of whom a large proportion went to

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England) still in ships. The conditions under which the wounded passed along the lines of communication to the bases were, speaking generally, far better than at the Landing. Wounded arrived in Egypt much less "septic." Organisation, staff, and equipment were all on a higher plane. Though there was considerable overcrowding, some insufficiency (as the P.D.M.S. observed) of medical orderlies, and a few cases in which the ships used as ambulance carriers were utterly unsuitable,[8] the greater proportion were fine vessels, and some, like the *Caledonia* and *Franconia,* had been accustomed to act as carriers and were better "found" than many hospital ships. Nevertheless the serious delays that characterised the passage of the wounded on the complicated lines of communication made their treatment in these vessels a matter of deep concern, not always met by commensurate experience and skill. The staffs were hastily chosen from a somewhat mixed collection of officers, nurses, and orderlies. There is no doubt that if sea transport sections—selected beforehand with due consideration of the surgical requirements and equipped on a proper scale —had been available for the care of the wounded at this stage, when in so many cases the issues of life and death were at stake, lives would have been saved and permanent disablements avoided.

Three chief factors appear to have contributed to the special difficulties experienced in the evacuation and disposal of casualties during the course of these operations. First—to the 30,000 wounded there were added some 20,000 sick; second—the medical preparations were begun when they should have been nearing completion; and, third—more than any other department, the medical had been involved in the delay of development at the intermediate base.

It is right that the reader's final impression of the work of the medical service of Great Britain in these most difficult operations should be the broad one of 29,585 wounded and 15,774 sick[9] safely—if precariously, and with many

[8] The *Georgian*, for example, with an Australian medical officer as "S.M.O.," carried a large number of seriously wounded to Malta under conditions not greatly differing from those at the Landing. On arrival there she was condemned for further use.

[9] To the end of August.

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vicissitudes and some very tragic happenings—cared for and conveyed along the dangerous and difficult evacuation route to hospitals at the bases.[10]

On August 28th the Commander-in-Chief, through the Deputy Quartermaster-General, expressed to the Inspector-General of Communications his "satisfaction with the way in which the wounded and sick had been evacuated from the Peninsula during these operations." So far as he could judge, "the business of evacuation had passed off practically without a hitch." In forwarding this commendation to the D.D.M.S., for the Lines of Communication, the I.G.C. added his "personal satisfaction" at the results achieved. It may be taken that expressions such as these by eminent and responsible soldiers indicate the standard of attainment for which the military leader looks or hopes in the disposal of battle casualties under circumstances such as have been described. It is important that the limitations of the medical service in the direction of humane alleviation should be fully recognised by those who seek victory in war.

The problems attending the reception of these casualties in Egypt and England will be dealt with in later chapters[11] together with other problems to which they more closely relate. The narrative must now turn back to the great wave of sickness which swept Gallipoli during and after the August offensive.

[10] No "black" or "white" ship with wounded was lost on the voyage from the Dardanelles.

[11] *Chapters xxiii* (Egypt) and *xxiii* (England).

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CHAPTER XVI

THE DISEASE DEBACLE AT GALLIPOLI

THE rush of wounded from the early August offensive was followed in late-August, September, and October, by a flood of sick which far surpassed all expectations and brought about an acute cry for reinforcements at the front and a renewed crisis on the lines of communication and at the bases. The collapse in health of the troops, after extended service culminating in the August attacks, at last compelled their relief by fresher units. Some reorganisation was effected on the medical staff and attempts were made, notwithstanding lack of material, to follow the advice of scientific advisers who had lately arrived in numbers at the Dardanelles. But the causes of disease had gone too long undiscovered and unchecked, and the newly-arrived divisions went down before them even more quickly than the older ones. Not these precautions but the approach of winter—to meet which preparations for treatment on the Peninsula were taken in hand—suddenly put an end to the wave of intestinal disease.

* * *

The history of the campaign, after August 9th, is almost entirely concerned with disease and its effects. The retreat from Gallipoli (it may almost be said) is embodied as distinctly, if less dramatically, in the sick wastage of September, October, and November as in the actual strategic "evacuation" of the Peninsula.

Military situation in Levant

The stage on which were enacted the later scenes of the drama whose movement is now to be followed to the final curtain differed greatly in its setting from that on which there had stepped in the spring of the year the "detached force" of the A.I.F. and "demolition parties" of marines. The total military force now in the Levant approached 220,000 men,[1] whose maintenance taxed to the utmost the maritime

[1] The total numbers in the British forces employed in this campaign were 327,606 combatants and 141,381 non-combatants. The maximum strength at any time in this theatre of war was 85,175 combatants and 42,562 non-combatants, making a total of 127,737. (War Office tables of *Statistics of the military effort of the British Empire during the Great War. pp. 743-44.*)

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resources of the greatest Sea Power in history. Action also now proceeds amid circumstances which had become drastically changed by the fortunes of the campaign. The intended blow at Constantinople, if it had been directed and followed up with "a vigour and fury" befitting so tremendous a crisis and so astonishing an opportunity, might well have closed the East as a theatre of war, saved the Russian ally, drawn over the Balkan states, and materially shortened the war. Instead, the failure to kill entailed a struggle for life, which till the end of the war caused the fighting both in the Near and Middle East to be a heavy drain on the resources of the Allies, and to Great Britain it brought a loss of prestige which even the safe withdrawal from the enterprise and final triumph could not fully offset.

With the fall of Brest-Litovsk by the end of August a large German force had been set free on the Russian front to deal with the situation in the Balkans (considered by the German General Staff at the moment the most important strategic centre): and, as a result of the failure of the August operations at Gallipoli, in September Bulgaria turned openly to the enemy and the way was thus cleared for the passage of German heavy artillery and troops to Turkey. Greece took refuge in neutrality; the situation in Serbia became desperate. A great Turkish counter-offensive at Gallipoli was planned, and this would be backed by the resources of the Central Powers. The strategic centre for the German submarine activities was transferred to the Mediterranean.

For the British force at Gallipoli the end of August brought—too late—divisional generals of high repute from

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France, but not fresh troops and munitions to retrieve the situation and exploit the advance that had been made. The reinforcements now sent were too scanty to permit even of adequate reliefs. British resources were drawn with the French into the vast and largely futile frontal attacks on the Western Front at Loos and in the Champagne, while in the East, instead of vigorous prosecution of the campaign at the Dardanelles, there was substituted—chiefly through French influence—a fatal diversion of effort to a new but sterile seat of war in the Balkans.

Consequences of the failure at Gallipoli

When General Hamilton on August 10th found himself unable, through lack of adequate reserves,[2] to exploit the advantages gained, and obliged even to postpone the minor operation of establishing the line between Suvla and Anzac, he cabled for new units comprising at least 50,000 fresh troops and 60,000 drafts. These were refused. Anxious to make clear the serious involvements of the decision, on August 23rd (immediately after the failure of the first attack on Hill 60) he cabled to the Secretary of State for War that

> this renewed failure, combined with the heavy total casualties from the 6th August and the fact that sickness has been greatly on the increase during the last fortnight, has profoundly modified my position, and, as you cannot now give me further reinforcements, it is only possible to remain on the defensive. . . . I have only 50,000 men in the North to hold a line from the right of Anzac to the sea north of Suvla, a distance of 23,000 yards. When there is no serious engagement, but only daily trench fighting, the average net wastage from sickness and war is 24 per cent of the fighting strength per month. The Anzac Corps, 29th Division and 42nd Division, are very tired and need a rest badly. Keeping these conditions in view, it appears inevitable that within the next fortnight I shall be compelled to relinquish either Suvla Bay or Anzac Cove, and must also envisage the possibility of further reduction of my front in the near future.

The former alternative was considered by him the more feasible, while the "further reduction" was indicated in the words—

> when normal wastage diminished my strength below this limit (*i.e.*, holding the new Anzac front and Suvla), I could, if necessary, withdraw into the original Anzac position.

[2] The divisions sent out for the offensive did not even bring their normal 10 per cent reinforcements.

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It is clear that so disastrous a necessity had not seriously entered Sir Ian Hamilton's mind. The suggestion was to a great extent a "bluff" on his part, legitimate perhaps, but risky. It is nevertheless open to serious question whether the statement did not indeed fairly represent the situation at the time. As he explained on August 28th—when, in alarm at the effect produced, and being made aware of reinforcements *en route,* he modified his previous warning—"the sickness was so great that, unless reinforcements were sent out, my force would soon be too small for the number of yards of front to be held." In any case, the influence of the message was crucial. The Gallipoli campaign—and any other strategy save that of battering on the Western Front—had many enemies, particularly in France. Instead of receiving, as he hoped, new troops and adequate munitions for a further strong offensive while opportunity remained, General Hamilton was instructed (since Suvla could, if necessary, be abandoned and the line shortened) to send thence to Salonica the 10th (Irish) Division and a French division from Helles. Though the line was not shortened, this deflection of troops from Gallipoli on September 30th marks the beginning of the end. On October 11th Hamilton was instructed to estimate the cost of complete evacuation. His own estimate of the possible losses was thirty-five to forty per cent, but he gladly deferred to that of his general staff of fifty per cent, and otherwise clearly indicated his irrevocable opposition to the idea of abandoning the campaign. Both in France and England his opponents were in the ascendant; and, indeed, with winter approaching, the outlook for the force, now becoming itself beleaguered rather than invading, was serious. Lord Kitchener could do no more than obtain the respite of a special report on the situation. General Sir Charles Monro—a known supporter of the "Western" strategy—was sent out: on October 17th Sir Ian Hamilton was recalled. After a brief survey, General Monro, in a dispassionate and able appreciation of the situation, recommended immediate evacuation of the Peninsula, his opinion being based partly on military grounds,

Sickness a main factor

Question of Evacuation

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partly on the present wastage from disease and the prospective difficulties of maintenance during the winter. On October 23rd he was placed in command of the M.E.F. In a last effort to save the campaign, Lord Kitchener came to Gallipoli to inspect, arriving on November 10th. His visit coincided with conditions which, temporarily at least, and so far as Anzac[3] was concerned, were much more favourable than when General Monro made his report. But the knowledge that ammunition and heavy howitzers were being received from Germany decided the fate of the campaign. At a conference at Mudros on November 22nd (which included General Maxwell) it was agreed that the Peninsula should be evacuated in favour of an attack elsewhere on the Turkish lines of communication. Preparations for the evacuation were accordingly begun on lines laid down in a plan already drawn up.

Aftermath of the offensive

While from the point of view of military and political designs the events of the Gallipoli campaign after August 9th are of the nature of an anticlimax, for the services of maintenance—in particular the medical—and for the A.I.F., the developments of the situation have their interest, partly as illustrating the inexorable laws of causation, and partly because of their influence upon the future.

Organisation of new area

The second great effort of the campaign was, like the first, neither a failure nor yet a success. It left the northern force —at Anzac and Suvla—in occupation of some eight square miles instead of half a square mile, but in a situation otherwise little changed. Only the seaward slopes of Sari Bair were held; everywhere the position was overlooked by the enemy. With treble the troops to maintain, no resources, except a small local supply of water, had been gained. On the medical side, while opportunity for local treatment was somewhat improved, the difficulty of evacuation and disposal had become enormously increased.

[3] Where very extensive tunnelling had been carried out. The preparations made by this corps were such indeed that he would have been prepared—it would appear—to agree to a winter besiegement and a resumed offensive.

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The Anzac line linked at Asma Dere with that of the IX British Corps, but a deep salient remained. For administrative purposes the position held by the Anzac Corps was divided into four divisional areas and an advanced base, the former (from left to right) being held by the 13th British,[4] N.Z. & A., 2nd Australian, and 1st Australian Divisions respectively. The light horse were, as before, distributed among the two original divisions. The three brigades of the 2nd Division, as they arrived, took their places in the line. The troops that composed it were of a quality not inferior to that of the "originals"; its medical service was full of initiative and well trained. Early in September "North Beach," which now contained the headquarters of the advanced base, became the centre of activity. Collection of the wounded from the trenches and evacuation from the beach were gradually organised.

Trench warfare renewed

The Hill 60 fighting was succeeded by trench-warfare, which, at Anzac, closely resembled that immediately after the Landing. Dominated by superior positions, with their own approaches commanded, and the whole position tactically unsound, the Australian and New Zealand troops by superior soldiership obtained everywhere a local mastery similar to that achieved in Monash Valley.

For the rest of the campaign the wound-rate at Anzac was less than 0.1 per cent per day of the force there. But this was more than offset by the huge sick-rate. Even for the month of August the number of wounded evacuated from the A. & N.Z. Army Corps was nearly equalled by that of the sick, while in the 1st Australian Division, out of a total wastage for that month of 57 per cent of the force, 32 per cent were sick.

Collapse in health

In a previous chapter[5] there was described a progressive deterioration of health during May, June, and July which was even greater than is shown by the heavy rate of evacuation, since many sick were retained to fill out their units. The damage had been done; at least 50 per cent of wounded from the old

[4] On August 28 the 13th Division proceeded to Suvla, having been replaced by the 54th.

[5] *pp. 235-6, 248-9.*

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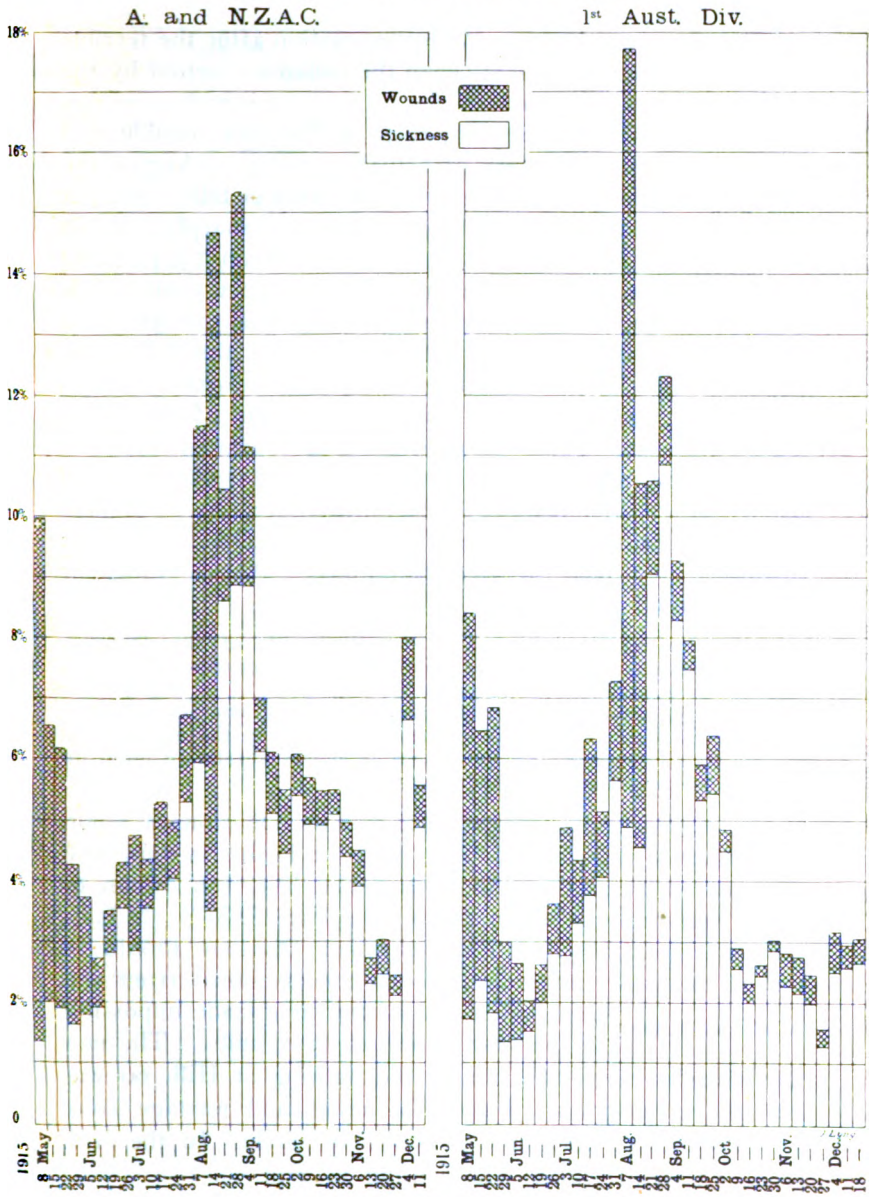
Graph 1

THE RATE PER CENT ON WEEKLY AVERAGE STRENGTH OF MEN EVACUATED FROM ANZAC FOR SICKNESS AND WOUNDS



The figures are derived from the Corps and Divisional diaries and evacuation states rendered by the C.C.S's. The average strength of the Corps was 28,000, of the Division 12,000.

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units were very sick men. With the reaction after the terrible strain of the fighting, there began the collapse foretold by the medical officers at Anzac.

The total sick rate for the corps in July was double that of May. During the week of actual operations (August 6th to 14th) the daily evacuation rate for sickness fell to 0.5 per cent per day; but during the next week it rose sharply. In the 1st Australian Division it averaged no less than 1.3 per cent per day, increasing till it amounted to 11.1 per cent in one week. For three weeks the daily average was 0.8 per cent of all troops, new and old. On August 24th the A.D.M.S., 1st Australian Division, called for special reports from his regimental medical officers on the condition of the men. They were unanimous in expressing the gravest concern. "I have never seen men out of hospital looking so ill as a large proportion of the men here do." "Men frequently faint at their posts." The A.D.M.S. himself inspected 350 men in five battalions. As a result he found himself

> compelled to report unfavourably on the health of the Division. Repeated attacks of dysenteric diarrhœa with consequent marked anæmia have produced a very serious change. . . . Many have been kept on duty only by invalid diet, stimulants, and the fact that R.M.O's have been instructed by me that, owing to the exigency of the situation, men must not be evacuated unless absolutely unfit for duty. The men require a good long rest.

In the 4th Australian Brigade (N.Z. & A. Division) a report on August 13th records: "The state of health is very low. The reserve strength of individual men has been drawn on to the utmost limit." On August 22nd the D.M.S., M.E.F., recommended that the 1st Australian Division should be moved to a rest camp; but, though the divisional front was quiet, relief was at the time made impossible by the absence of relieving units. The new line elsewhere was still fluid; the fighting at Hill 60 was actually in progress. Failure of relief and wastage from sickness became associated in a vicious circle. In the N.Z. & A. Division, which was fighting at Hill 60, the G.O.C. considered it necessary to order greater strictness in evacuating

A vicious circle

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Graph 2

AVERAGE DAILY SICK PARADES OF AN R.M.O. OF THE 3RD BDE. SHOWN BY WEEKS AS PER CENT OF BATTALION STRENGTH

Sick treated in battalion lines is shown by the difference between "paraded sick" and "evacuated to field ambulance."

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sick. In the 1st Australian Division, however, restrictions on evacuation were now relaxed; the flood-gates were opened.[6]

This huge wastage brought a protest from the D.M.S., M.E.F., who asked the A.D.M.S., 1st Australian Division: "What are the prevailing diseases?" The A.D.M.S. replied: "Dysenteric diarrhœa and influenza." The War Office inquired "the cause of debility in such excessive numbers," and the answer from G.H.Q., M.E.F., was "mainly diarrhœa, mild dysentery, and debility caused by the prolonged occupation of trenches under fire, also by war diet to which men are unaccustomed." By order of the D.M.S., M.E.F., evacuation was again restricted, and treatment in the lines resumed. Ambulance accommodation on the Peninsula was increased, and efforts were made to stem the tide of disease by more serious and exact efforts at sanitation and by arranging for reliefs.[7]

Local diagnosis vague

The aetiological composition and course of the wave of sickness, so far as they are disclosed by hospital diagnosis of cases evacuated, can be followed in the statistical analyses of diseases. The two chief infective factors in the morbidity, as they presented themselves to the medical officers on the Peninsula at this time, were intestinal infection and "influenza." The latter hid—as it still hides—a vague group of infections which, though it was partly inspiratory, certainly comprised much that was not influenza. Through aetiological ignorance no attempt was — or, indeed, could be — made at its prevention. "Dysenteric diarrhœa" had become almost universal; "enteric" was vaguely known to be prevalent. It was obvious that "sanitation" had entirely failed to prevent a grave outbreak of intestinal infections.

The extreme concentration of troops in the back area of the old Anzac position, before the offensive, had led to a "sanitary" breakdown, and the country newly-won was subject to all the sanitary crudities that accompany an advance;

[6] The result is seen in graph at *p. 347*, which shows the sick rate for the week ending August 28, and in detail in the statistical analysis of diseases in *Chap. xxi.*

[7] To mitigate the effect of excessive "fatigues" a British "labour corps" was sent and civilian labour obtained from Malta and Egypt. This was, however, not sufficient to influence the situation materially.

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by the end of August it had become (as had Suvla) almost as fly-infested and infective as the old area.[8] In the 1st Australian Division a confidential memorandum was issued to all units at the request of the A.D.M.S. It introduced no new system, but urged stricter supervision; disinfectants were to be used freely, refuse burned. Fly-proof netting had already been issued by the A.D.M.S. to medical officers "for rendering fly-proof Quartermasters' stores and for meat-covers in cookhouse lines"; it now became a normal "supply" of the army service corps. On August 13th a British sanitary section[9] was placed under the commandant of the Anzac base, but could not cope with the situation.

but "Sanitation" pressed

In the meantime the Levant had during this month become a scene of intense medical activity. The reaction to the menace of disease had had effect in the assembling of an imposing array of medical talent, directed by the P.D.M.S from his office in Alexandria. Besides the Medical Advisory Committee, the Entomological Commission had arrived and was experimenting on fly-prevention. A fine system of "central laboratories" was being developed at Lemnos, Alexandria, and Cairo. Medical and surgical consultants, drawn from the highest ranks of the civil profession, arrived in dozens. The military preoccupation in August had made the month—from the point of view of prevention of disease—one of "mark time"; but the outlook was being illuminated and the clinical chaos resolved in the laboratories. At East Mudros early in August Captain Archibald, R.A.M.C., had found that much of the enterica was "paratyphoid," and had thereby confirmed clinical observations and also researches elsewhere. The importance of this discovery was profound, and its ultimate results were far-reaching. For the moment, however, the only effect was that "paratyphoid" was ordered to be shown separately in the returns. Investigating the cases of diarrhœa and dysentery, he found that in most of them the

Scientific assistance arrives

[8] The plague of blow-flies from dead bodies in August was phenomenal (at Lone Pine maggots were swept up from the trenches in bucketsful); aetiologically it was probably of minor importance.

[9] Sanitary sections at Anzac and also at Helles were at this time line of communication units. Anzac base was technically under the I.G.C. and D.D.M.S., L. of C.

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dejecta contained *amœba histolytica*—as a pathogenic agent, it was presumed. Also early in August Lieutenant-Colonel Sir Ronald Ross, consultant in tropical diseases, was led by the results of observations in Egypt to suggest the use of emetine "in all cases showing any dysenteric symptoms whatever," and also, for safety, "in cases which appear to be only slight diarrhœa." This advice was circulated by the D.M.S., M.E.F., to all medical officers, and at the end of August, after some delay through lack of the drug and of syringes, emetine was used at the front.

Diseases identified

On August 31st the Medical Advisory Committee, accompanied by the "A.D.M.S., Sanitary," inspected Anzac, directing their attention chiefly to "diarrhœa prevalence and prevention" and to food.[10] Their report dealt exhaustively with the epidemiological situation, and constructive suggestions were made. It concluded as follows: "In dealing with preventive sickness there is room for more active assistance being given from Headquarters to (medical) men on the Peninsula."

On September 4th there were issued Circulars Nos. 1 and 2 of the D.M.S., M.E.F.—reprints of memoranda issued in France in May—on "The prevention of flies in camps and billets" and "The prevention of typhoid." But such opportunity as existed for preventing or limiting an intestinal epidemic had been lost in May and June. The conflagration was now entirely out of hand. As it was put by an Australian medical officer with exceptional opportunity for judging, "you might as well have spat on a bushfire."

With the approval of the Commander-in-Chief, on September 8th Lieutenant-Colonel J. Purves-Stewart, R.A.M.C., as a clinical consultant, inquired into the incidence of disease from the clinical standpoint. Returns furnished by the D.M.S., M.E.F., showed on September 5th a weekly sick-evacuation

[10] The Committee expressed the view that dust and diet were predominant factors in the prevalence of diarrhœal disease on Gallipoli. In view of the authority of the members of that body this conclusion must be given due weight. It is, nevertheless, an astonishing one, and open to grave question. Neither months of army ration nor the unsurpassed dustiness of the Jordan Valley caused diarrhœa or dysentery in the Palestine Campaign (*see Part II of this volume*). Diarrhœal disease at Anzac was due, to a degree far exceeding all other causes, to infection.

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rate of 1.7 per cent at Suvla, 5.1 per cent at Helles, 7.5 per cent at Anzac.[11] Colonel Purves-Stewart confined his attention to the physical condition of the troops "not reported sick" but actually in the firing trenches, and examined a large number, with fresh troops of the 2nd Australian Division as "control." Of the former 77 per cent were emaciated and anaemic, 78 per cent suffered from intermittent diarrhœa, 64 per cent from indolent ulcers of the skin. "Most striking of all" was the rapidity and feebleness of the heart's action. Tachycardia "not due to sudden exertion or emotion" was found in 50 per cent, and 74 per cent suffered from shortness of breath. He strongly urged adequate relief, "for example, a voyage to Australia," and, for the new troops, prophylactic revision of the dietary and a "canteen."

Expert investigation

The reports of these outside authorities received attention denied to the local prophets, and compelled recognition of the fact that without reliefs and reserves no fresh operations could be contemplated. The situation permitted of no further temporising. The battalions of the 3rd Australian Infantry Brigade, which did nothing more than hold the line during the August operations, had on August 6th 3,622 men; three weeks later only 2,476 remained: 1,146—over thirty per cent—had been evacuated either sick or wounded. The situation was summed up hardly too severely by a regimental medical officer:—"Men who were just skin and bone; hands, arms, and legs covered with septic sores; ill with dysentery; had to work in the trenches on bully-beef, bacon, and biscuits."

Reliefs granted at last

Relief had been made possible by expediting the arrival from Egypt of the 2nd Australian Division, and between the 7th and the 21st of September the 1st and 2nd Brigades (now totalling 3,400), the 4th Australian and both New Zealand Brigades (numbering, with reinforcements, little over 5,000), together with their medical units, were sent to Lemnos, where a rest camp was formed at Sarpi, West Mudros. The circumstances of this relief are described elsewhere.

[11] In the report as received by the Australian "War Records Section" the sick rates for Helles and Suvla are transposed, obviously in error.

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The conditions on the whole favoured recuperation, but owing to the condition of the troops it was very slow. At the end of September the A.D.M.S., 1st Australian Division, reporting to the G.O.C., A. & N.Z. Army Corps, stated that—

the men on the whole show evidence of improvement, but many are still very weak. There should be—

Ready for the front after 4 weeks	1,609
,, ,, ,, ,, 8 ,, ...	1,604
Permanently unfit	80

Dental attention was required in 607 cases (*i.e.*, 1 in 6), of whom 411 were "urgent."

The 3rd Infantry Brigade and the worn and wasted light horse brigades were not relieved till the middle of November.

With the relief of the 1st Division by the 2nd the medical dispositions at Anzac underwent a corresponding change. The 3rd Field Ambulance now ran the dressing station at the cove, and also their little dug-out rest station in White's Valley. The light horse field ambulances, fit and fairly fresh, served their own brigades and formed rest stations. In the 2nd Australian Division—on which now fell the major rôle in the defence of the Anzac position—the 5th Field Ambulance was "working" Walker's Ridge and Monash Valley; the 6th Field Ambulance took over from the 1st (at Lone Pine) and 2nd; the 7th relieved the 4th Australian and New Zealand Field Ambulances, which went to Lemnos. The headquarters of the 2nd Australian Division were established in Rest Gully.

2nd Australian Division arrives

The relief of the brigades synchronised with a new phase of the history of Anzac. The final scene of the Gallipoli drama was opening up: new factors and problems were appearing, destined materially to influence the course of the campaign. Even by August 14th it was clear that, the purpose of the offensive not having been achieved, a winter in trenches was inevitable. On the 19th, in his capacity of Medical Control Officer, the officer commanding the 1st Australian Casualty Clearing Station submitted to the D.M.S., M.E.F., "as a matter of the gravest urgency," recommendations for the

A new problem—wintering

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establishment on shore of stationary hospitals and huts, and for the making of roads and providing of treatment for the winter; at the same time the Australian "Embarkation Medical Officer" suggested means for improved transport. The Navy drew the attention of the Inspector-General of Communications to the "absolute necessity of large hospitals on the Peninsula. . . . . During the winter for many days in succession weather will stop all boat work on the beaches." On August 28th the A.D.M.S., 1st Australian Division, submitted an estimate of medical comforts required during the winter months, calculating that permanent accommodation for sick would be required on Anzac at the rate of twelve per 1,000 during the winter.

D.D.M.S. on Corps Staff at last

Another important change occurred at the same time. On August 24th the position of D.D.M.S., Anzac Corps ("part time"), was offered by the D.M.S., M.E.F., to the A.D.M.S., 1st Australian Division; but on account of internal developments in the Australian medical service—of which more anon—Colonel Howse asked permission to refuse. On the 30th, however, he pointed out to the corps commander the need for a deputy-director of medical services "to devote his whole time to winter provisions," and on September 6th a scheme for winter housing by the D.M.S., M.E.F., was passed to him by General Birdwood for comment. On the 11th, having agreed to act as D.D.M.S. till the arrival of Colonel Manifold, I.M.S. (who had been specially asked for by General Birdwood), he was provisionally appointed to that office.

The executive responsibilities of this position of D.D.M.S. were not great:[12] a deputy-assistant-director was not appointed. The change was nevertheless an important one. The medical service at Anzac was now represented on corps headquarters by an administrative medical officer in direct communication with the D.M.S., M.E.F., instead of, as heretofore, solely by a combatant; and, while the divisional assistant-directors continued to control their own sectors, the deputy-director

[12] The duties of a D.D.M.S., Army Corps, are ill-defined. The division is the unit of army organisation, and usurpation by corps of its authority is resented. Only under abnormal conditions as in 1916 in France did an army corps function more or less as a "unit."

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exercised considerable co-ordinating authority and initiative. He practically superseded the "Medical Control Officer." From this date the corps outlook may be conveniently adopted in this narrative.

He turns to rest camps

Though appointed specially to take in hand preparations for the winter, the new D.D.M.S. found another and more immediate reason for pressing forward with the establishment of hospitals on the Peninsula. This was an increased outcry, to which reference will presently be made, against the evacuation of light cases from the Peninsula. Rest stations and segregation camps, for which there was now more room at Anzac, were urgently demanded. The field ambulances of the 2nd Australian Division had arrived fully equipped, and action was now taken by the others and by the 1st Australian Casualty Clearing Station to get their tents brought from Egypt. Tented stations, to accommodate 100 cases, were now established, some of the sites having been terraced by the engineers, and marquees were substituted for the makeshift accommodation at Rest Gully. On September 30th the 1st Australian Casualty Clearing Station moved to North Beach, now the centre of activity for the whole of Anzac. Here tent accommodation was provided for 400 cases, in addition to that of the 13th and 16th British Clearing Stations, which could take 300 each.

Extends his authority to sanitation

The gravity of the medical situation, moreover, impelled Colonel Howse to take a wider view of his responsibilities. The British sanitary section was at his request transferred to his control from that of the commandant of the Anzac base: the Medical Control Officer had no defined status and no authority. Drastic steps, which he described as "much needed," were taken to "clear up" this area. On September 14th a British Sanitary Section (21st) took over the North Beach. A "divisional" sanitary section was formed for the 2nd Australian Division like the one improvised by the 1st: efficient officers were in charge of each.[13]

[13] Australia, though not the first in the field with divisional sanitary sections, strongly upheld this organisation throughout the war. In the N.Z. & A. Division Major A. D. Carbery, well known as the author of the history of *The New Zealand Medical Service in the Great War, 1914-1918*, was "sanitary officer."

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Under these changed circumstances at Gallipoli, how did the fight against disease progress at Anzac? While some of the factors in the gastro-intestinal outbreak—"fecal contamination, flies, and other insanitary conditions"—had been found by the Medical Advisory Committee to be largely unavoidable, owing to the conditions of the military occupation,[14] they had strongly urged higher sanitary ideals. The health conscience, indeed, of the M.E.F. had now been fully awakened. Is there any evidence of response, in improved sanitary methods and more effective administrative control?

Final effort to stem the tide

As a matter of fact, the summer was already waning, and the fly problem was soon to be a thing of the past. But in the meantime the dead horse was well flogged. Though vigorous educational efforts and fine researches by the Entomological Commission in connection with fly-prevention came too late to influence the situation at Gallipoli, their efforts are to be seen in the improved methods of the Palestine Campaign. "Very few men," the P.D.M.S. found, "even (medical) officers, understand flies or can recognise the pupa or maggot. Everywhere I find flies breeding under people's noses."

Anti-fly campaign

On Anzac, though refuse was burnt, manure was never dealt with effectively. Flies attained their maximum in August and September. At the time the Turks were blamed, but with doubtful justice.[15] "During September," an officer records, "the swarms of flies had control of the situation.

[14] They were "struck by the cleanliness of the trench lines of the 1st Australian Division."

[15] Unfortunately very little information is available as to "sanitation" in the Turkish lines or the condition as regards disease among the troops. The following extract—quoted from Anzac General Staff war-diary, December, 1915, Appendix No. 61—from "information from a Turkish prisoner surrendered to the N.Z. Mtd. Bde., 3rd December, 1915," has some general interest:—

"FOOD. In the morning about 8 a.m. they get their porridge, made from grain—at midday cheese, and on alternate days olives, and in the evening white beans, sometimes onions and a little meat—and a daily ration of 2 lb. of bread. The beans are cooked with fat. The porridge and beans are not satisfying, but keep them alive. Since the cold weather they get a ration of raisins, and when these are served out they are in lieu of cheese. He has only had coffee once; they do not get tea, as there is no sugar (he says tea is no use without sugar).

"SANITATION. Behind each trench is a small latrine; lime is used. The orders are very strict about keeping trenches clean, so as to keep off sickness—not even cigarette-ends are seen in the trenches, which are swept out twice a day.

"MEDICAL. One doctor per battalion—slight cases are not sent to the hospital, but looked after by the doctor. Iodine is very short; otherwise the doctors seem to have plenty of medicines; only the very severe cases are sent to Constantinople."

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and literally followed the food into the mouth." An M.E.F. order of September 15th laid down that "the provision of fly-proof latrines is urgently necessary." By Anzac Corps "routine order" of September 22nd this was made an instruction to divisions; "lack of material to be reported to Corps." Nevertheless little was done; the needs of sanitation were not yet recognised as sufficiently vital to military success to justify the special transporting of material.[16] On September 21st "D.M.S., M.E.F., Memo. No. 3" was issued by Surgeon-General W. G. A. Bedford, who on September 19th had replaced Surgeon-General Birrell. This prescribed a pan system, with disposal in deep pits, provision being made for supplies of heavy oil for fly-prevention: on October 6th the A. & N.Z. Army Corps was instructed to estimate the number of carts and pans required for a conservancy system with burial in deep pits; but the difficulties proved insuperable. Pans were used in places like Quinn's and Steele's Posts. Some keen medical officers and battalion commanders co-operated to improvise deep pit-latrines with fly-proof seats, the disposition of excrement therein being immediate instead of indirect from pans. Experiments in disposal by incineration were carried out under the D.D.M.S., A. & N.Z. Army Corps, but the fuel problem was found prohibitive, and Horsfall destructors which arrived for the Dardanelles remained at Lemnos. The great defect at Anzac was reliance on engineers for the provision of the instruments of sanitation rather than on teaching the field units to improvise them—a matter of which more will be heard later.

Segregation neglected

In one important matter intimately related to this problem, the advice of the Medical Advisory Committee was not followed. The establishment of several small segregation and rest camps at Anzac has already been mentioned. In these were treated the less severe cases of all varieties—medical and surgical—and diseases officially classed as "infectious" were segregated.[17] The Medical Advisory Committee had

[16] The shortage of material was at this time very great, in consequence of the sinking of store-ships by German submarines. On September 20 a vessel full of wood and iron was sunk by Turkish gun-fire when being brought to North Beach.

[17] Speaking generally, the inspiratory and naso-pharyngeal infections; in particular, the exanthems. Provision was also made for the retention, should they occur, of infectious diseases with a high rate of mortality, such as cholera, typhus, and smallpox.

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recommended that infectious cases should include diarrhœa, "which may prove to be dysentery or enteric fever." If not, they had said, "additional centres of infection will arise." This was not done. Though dysentery was, when possible, kept separate in the camp hospitals, prevention of intestinal infection, even of enteric, by removal of foci was hardly attempted. Men with "P.U.O." and "diarrhœa"—broadly, enterica and dysentery—still remained in the lines until too sick to be held.

Flies pass with season

By the end of September the heat of summer was over. In October the flies rapidly decreased; by November the fly problem had passed out with the season. Final sanitary instructions for the winter, issued with full weight of authority and with elaborate plans, provided against the danger of flooding by rain-water, and ignored the fly. Some fly-proof seats—which were now being made in thousands at the base—arrived at Anzac. But the flies were all dead.

Water an indirect factor

The possibility of the intestinal infection being transmitted through the water-supply was investigated by the Medical Advisory Committee and by a distinguished expert sent out from England. Drastic orders were issued for the safeguarding of wells and chlorination of local supplies "when necessary"; but all this was practically a dead letter. Conditions in the water-tank ships from the base, and in the water barges from Lemnos, were found very unsatisfactory by the Advisory Committee, which recommended "strenuous precautions to safeguard the security of the whole shipborne water-supply and systematic chlorination . . . regulated by the use of Horrock's test boxes and not, as often at present, by rough rule."[18] But specific evidence of contamination of the water-supply, either local or imported, was not discovered. The bacteriologists, the P.D.M.S. wrote, convinced themselves and convinced him that the dysentery was not water-borne. At Lemnos, where chlorination was general, intestinal infection was rampant. It appears certain that, with the possible

[18] Few Horrock's test cases—the introduction of which is a landmark in the history of the war—reached the Dardanelles. They were unknown at Anzac.

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54. Parade for water at Dawkins' Point, Anzac, by a fatigue party from the 1st Field Ambulance, August 1915

Lent by Lieut.-Colonel H. R. G. Poate, A.A.M.C.
Aust. War Memorial Collection No. A1818.

55. Anzac from the south

In the foreground may be seen two types of incinerator.

Taken by Sgt. H. V. Woods, 4th Fld. Amb.
Aust. War Memorial Collection No. C669.

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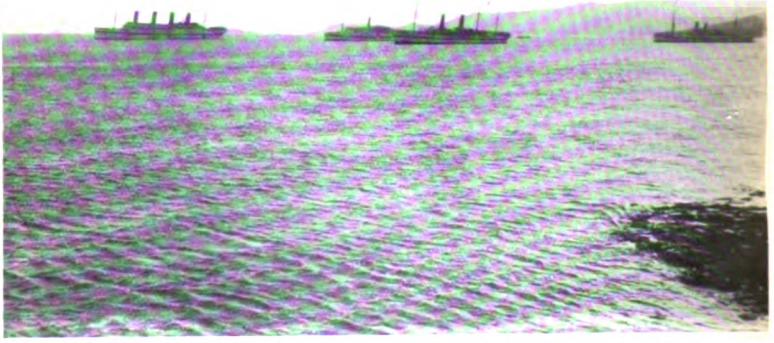
56. "Pioneers" of the 1st Battalion making box latrines in Gun Lane, Anzac, August 1915

Taken by Capt. H. Jacobs, 1st Bn.
Aust. War Memorial Collection No. C1921.



57. The *Aquitania* and three other hospital ships, Mudros Harbour

Taken by L/Cpl. A. W. Savage, No. 3 A.G.H.
Aust. War Memorial Collection No. J1545.

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exception of amœbic dysentery, water cannot be incriminated as an important cause of the intestinal holocaust in this campaign.

The actual supply of water was short throughout, and this was the cause of great anxiety and probably an important factor in health. The problem, though of great interest, was one for engineers, and cannot be followed. Schemes of reticulation lessened fatigues; local supplies were developed. A condenser was landed, but was at once irreparably damaged by shell-fire. To the end men often went thirsty; utensils were "cleaned with dirt": lotions were often made with sea-water: for washing, the sea remained almost the only resource, and (*pace* the D.M.S., M.E.F., who held that diarrhœa was due to sea bathing) it was also probably the most potent health factor at Anzac. Water shortage was at Suvla a definite cause of the failure: at Anzac it was a cause of dreadful suffering to the wounded and a serious, but not determining, factor in the military situation.

Diet—a complex question

Food was at its worst during the month of August. At the request of the army corps the issue of fresh meat was stopped during the operations and was not recommenced till September 14th. For lack of labour bread and vegetables also were seldom issued; the rice-and-milk "alternative" was stopped after three days. For many of the older troops these dietetic set-backs were the last straw.

The Medical Advisory Committee reported strongly on the matter. Diet "materially affected" the prevalence of diarrhœa at Anzac. There was need of greater variety, fresh vegetables, and also a field canteen; the lack of these, it was urged, had a definite influence on the military situation.[19] No very conspicuous results followed the recommendation, nor is there proof that any considerable effort was made to meet

[19] The Director of Supply and Transport replied that as much of the fresh-food ration—meat, bread, onions, and potatoes—had always been issued as was asked for, referred to the scale of equivalents "to show that no army had ever had so good and varied a ration," and suggested that "the abnormal amount" of jam consumed at Anzac might be a cause of the diarrhœa. An inquiry initiated by the D.D.M.S., Anzac Corps, as to the supplies of fresh food actually received by the 1st Australian Division showed that the comments of the Director of Supply and Transport in some respects represented the authorised rather than the actual issue. But it must in fairness be stated that, on the evidence from all sources at Gallipoli, the ration, *qua* army ration, was supplied for the most part in full quantity, and, on the whole, of good quality as compared with that of previous campaigns.

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the request for fresh vegetables, fruit, and preserved milk, or for a canteen, where the physiological and psychological cravings of civilised man could be met by the purchase of dietetic accessories. But it is evident that the supply service was far from being responsible for the whole of this default. A canteen can scarcely be looked upon as essential to the success of a campaign, though it is true that condiments such as sauce or pickles might have led to the "bully" beef ration being relished for a longer time than it was.

Three factors in the food situation at Gallipoli must be considered in assessing the shortcomings of the supply service in connection with the maintenance of health. In the first place, the conditions—at least at Anzac—as regards the distribution, preparation, and consumption of food were such that satisfaction could not have been given by any ration possible in the circumstances. Second, the scale of rations, even if it had been fully supplied, was, if used over a long period and under strenuous work, deficient in certain dietetic essentials. Relief from the front was the remedy proper to the first: for the second, the remedy was exact knowledge—lacking at the time, but subsequently evolved, partly through the experience of this campaign—of the essentials of diet required by the conditions. But the third and essential feature in the ration problem of Gallipoli was the fact that the army to be rationed was an army of sick men—as was, indeed, practically acknowledged. For the canteen, farinaceous foods and soft biscuits were the chief requests: eggs, supplied occasionally as a ration, were commonly handed over for distribution by the medical officer. "Medical comforts" were, in fact, practically rationed to the battalions.[20] Under these circumstances the contention of witnesses in the "Red Cross" inquiry[21] that the Red Cross Society should have supplied comforts for sick men in the trenches, though certainly incorrect, was not quite so preposterous as it appears on the surface, and Red Cross help

[20] On October 2 the D.D.M.S., Anzac Corps, reported that the A.D.M.S., 54th Division, after only seven weeks on the Peninsula, required "invalid diet for 1,200 men in a strength of 6,000." In the Anzac Corps he asked for invalid diets for at least 10 per cent.

[21] Held in Egypt in October into the direction of Australian "Red Cross" activities in the Levant.

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would have been welcome in the medical units. Yet the Red Cross could at best have only slightly supplemented the official source of medical comforts—the department of supply through the army service corps. "Comforts," particularly farinaceous food, often fell short, and strong feeling was thus aroused among medical officers. But, as the D.D.M.S., A. & N.Z. Army Corps, himself acknowledged, the demand was certainly an abnormal one, made in abnormal circumstances.[22]

Great efforts were made after September to improve the diet. The Commander-in-Chief himself took the matter up, and a ship-load of canteen stores was obtained and sold within a few hours. But the ration underwent no change of importance, the ambitious designs indicated in "General Routine Order 650" of November 16th being cut short by the Evacuation.

The Dental factor

Dental disease and dental deficiency continued to play an important part in the production of the peculiar pathological syndrome, the expression in part of repeated physiological insults, in part of infective assaults. It influenced health on both counts. Pyorrhœa was very prevalent; caries took an acute form. Even more than in June and July, on the physiological side the fact was brought home that civilised man is largely dependent on artificial dentition. The hopeless situation in respect of treatment at the base which during that period had brought about the stoppage of dental evacuation, led to local attempts at treatment. At Anzac dental work was confined to that done by two New Zealand officers and the personal efforts of a few dentists enlisted in medical and other units, with personal or donated equipment. Two New Zealand dental officers also worked at Imbros; fuller opportunities were opening at Lemnos. But shortage of dental supplies paralysed initiative at the front.

[22] In this connection there may be mentioned the first effort of the "Australian Comforts Fund" to reach the men in the trenches. In October a considerable quantity of foodstuffs was brought by the Commissioner and distributed, chiefly by R.M.O's, the article most welcome being oatmeal. The Y.M.C.A. also, whose work in the war supplemented that of the medical service by assisting in the maintenance of morale, was represented by energetic workers, a bakery being established at Imbros to supply a coffee-stall associated with a reading-room at Anzac. The results achieved by these amateur efforts indicate that much more might have been done officially to ameliorate the exceptional conditions in this campaign.

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The number of dépôts of medical stores in the M.E.F. remained below establishment.[23] Drugs sometimes fell short, "particularly those used in the treatment of diarrhœa, influenza, and the common coughs and colds," castor oil, epsom salts, synthetic analgesics, and cough tablets. The demand was very great, and probably excessive, the drug habit (so to speak) of the civilian practitioner being hard to eradicate. Of castor oil the epigram is recorded that "it threatens to become the Australian national drink." But British units also complained, and it is certain that the huge demand occasioned by the unexpected sick-rate was unforeseen.

Medical stores

It remains to see what effect upon the course of disease resulted from such measures as were taken during the months following the August offensive. Unhappily the curve of disease among the new troops—whose arrival coincided with this period of medical bustle—did not respond to the formidable weight of talent, scientific and administrative, which arrived to keep it down; the scientific experts could do little more than clothe in scientific language the fact of a *débâcle*. The incidence of various diseases and disease groups may be seen in the graphs. Among all the troops infective disease reached a climax in September; for the week ending on the 18th of that month wastage from disease alone on the Peninsula was equivalent to an annual wastage of nearly three times the whole force.

Belated disease campaign futile

Colonel Purves-Stewart had found the men of the 2nd Australian Division "of splendid physique, in the pink of condition, active and alert." The "dinkums," as they were called,[24] were undoubtedly as fine a body of men as any that left Australia, had a good conceit of themselves, and included in their ranks a fine medical service. But when they were caught in the murrain, their fall, though not so far, was even more rapid

Sickness in 2nd Division

[23] Australia supplied no such units, and the deficiency was not made good by the Imperial Government. The 4th and, later, 8th Advanced Dépôts, however, were allotted to the Anzac Corps, and did very fine work.

[24] That is, the "true Australians." The implication was that the earlier troops ("the tourists") were an adventurous crowd that had flocked to enlist in the hope of seeing something of the world and of war, and that the "dinkums" enlisted after weighing their duty to Australia and the Empire. They were followed by the "war babies," the "deep thinkers," the "neutrals"—and so on.

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than had been that of the "originals." The 5th Brigade arrived on August 19th. On the 28th the 5th Field Ambulance reported "cases of diarrhœa" from the brigade. On the 31st "have 100 cases of dysentery" (*sic*). On September 6th the 6th Brigade arrived, and on the 14th the 7th. By October 1st three per cent of the division were under treatment for "diarrhœa" in medical units, while there were other cases treated in the lines. A light horse medical officer found that "the more recently arrived troops seem to be more seriously infected with diarrhœa than the older hands; sick wastage from them is very high." The experience of the 54th British Division, of the troops at Suvla, and of those in reinforcements, was similar.

Among all the troops, evacuation for infective disease reached its zenith in September. Dysentery became more severe, though less prevalent. Secondary effects—intestinal, general, and recurrences—were frequent. Pyrexial diseases increased enormously. Besides paratyphoid and a-typical typhoid, much fever was undiagnosed and was treated on the spot.

September—climax in disease

This was indeed a hectic month. "P.U.O." (pyrexia of unknown origin) became almost the prevailing "disease." Curious cases of high but transient pyrexia—not due to the eating of cordite for the purpose of malingering, which motive, it may be noted, was uncommon at Anzac—were called "heatstroke," sometimes, perhaps, not incorrectly.[25] Both in fevers and fluxes multiple infections were frequent and helped to confuse the picture. Cholera, fortunately, did not occur, though its absence can hardly be ascribed to the small dose of vaccine. Of diseases transmitted specifically by insects, a few cases of malaria (endemic on the Peninsula) were diagnosed; but mosquitoes were rare. Sandfly fever was not recognised at Anzac, though it occurred at Helles. Several cases were diagnosed as typhus, probably correctly, though lice on Gallipoli remained generally uninfected. Trench fever was not recognised but may have swelled "influenza," "P.U.O.," and "rheumatism." Scabies was hardly seen; the prevailing costume—a pair of shorts, hat, boots, and perhaps

[25] For observations on the causative relations between heat apoplexy and defective fluid intake, *see pp. 600-1.*

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a shirt—worn by general or private, and evolved chiefly in the endeavour to overcome the prodigious plague of lice, did not favour this disease. But among the older troops minor septic sores, of the peculiarly intractable kind known in Australia as "Barcoo rot" and in South Africa as "veldt sore," were almost universal.

During August a few cases had occurred in which nausea or vomiting, headache, extreme malaise, foul tongue, slight abdominal tenderness, and pyrexia were the symptoms commonly preceding moderate jaundice, though in some instances this symptom was absent. In September these cases increased.

Among non-infective diseases, "rheumatism" was very prevalent, the term being often, as in civil life, a cloak for medical ignorance. Myalgia and fibrositis from physical hardship accounted for many cases so diagnosed; some cases in older men were due to a recurrence or the manifestation of a chronic arthritis; not a few were certainly secondary to sundry infections. "Dyspepsia" was almost universal—neither ration nor cooking was suitable for sick men, and dental disease and disability were widespread. Acute nephritis was rare, but a condition of generalised oedema, sometimes very transient, without albuminuria, was not uncommon; polyuria and dysuria brought many to the regimental medical officer's sick-parades. The aetiology of these conditions is discussed elsewhere. Medical officers, regimental and ambulance, were confounded by the varied and bizarre character of the symptoms, acute and chronic, which presented themselves. The dilemmas that faced the conscientious regimental medical officer were, indeed, many. In diagnosis, he had to discriminate, besides the disease, the human element; to spot the man who was only "fed up," the man seriously ill but "cracking hardy," and the man nearing his limit but not quite there within the stern purpose of Gallipoli. Each disease and each man had to be dealt with "*secundum artem*," and military necessity compelled medical sin. "Sticking it out" against disease was made a point of honour; it was, indeed, accepted by the corps commander as the official policy. A man was evacuated only when he was no longer of use, or had some blatant contagion.

The "R.M.O."

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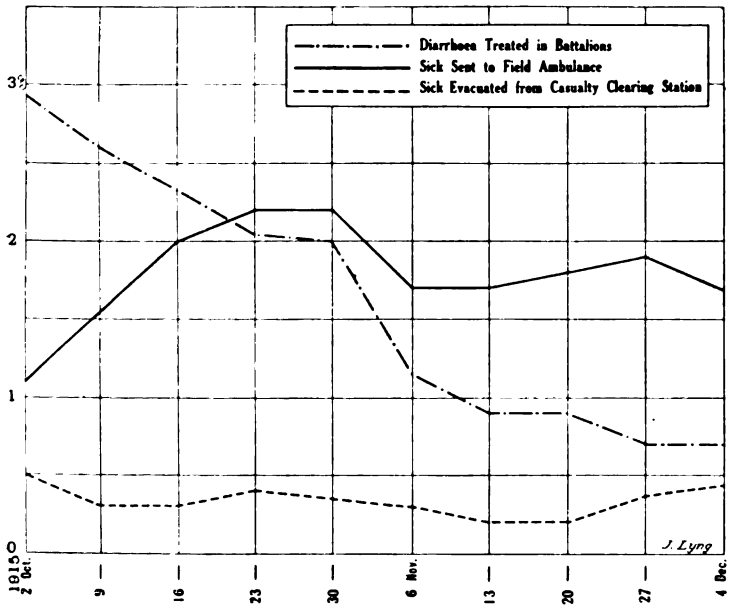
Regimental medical officers, as well as assistant directors of medical services, were hampered by lack of information concerning the ultimate diagnosis of cases evacuated under suspicion, or of diseases to be sought. Except for an occasional flare lighted by the threat of some flamboyant disease, such as cholera or typhus, only the faintest light directed the regimental medical officer in his efforts to discriminate—among the wasting and oedemas, the fevers, colics, and bloody fluxes, that assailed his sick parade—between those who might be a menace to the force and those for whom it was right to attempt treatment in the lines.[26]

Graph 3

SICKNESS IN THE 5TH AND 6TH BRIGADES SHOWN AS THE AVERAGE DAILY RATE PER CENT OF STRENGTH



Figures are derived from the diaries of the 5th and 6th Brigades and the A.D.M.S., 2nd Aust. Division.

[26] An interesting example may be given. In September an R.M.O. reported the occurrence of a considerable number of cases of acute pyrexial disease "which I am calling tentatively 'influenza'": rapid, often apparently sudden, in onset, with vomiting, sometimes rigor, severe headache and backache, great malaise, foul tongue, and high temperature. Some cases, treated in the lines, were "well in ten days." The personal records of a number of those evacuated have been

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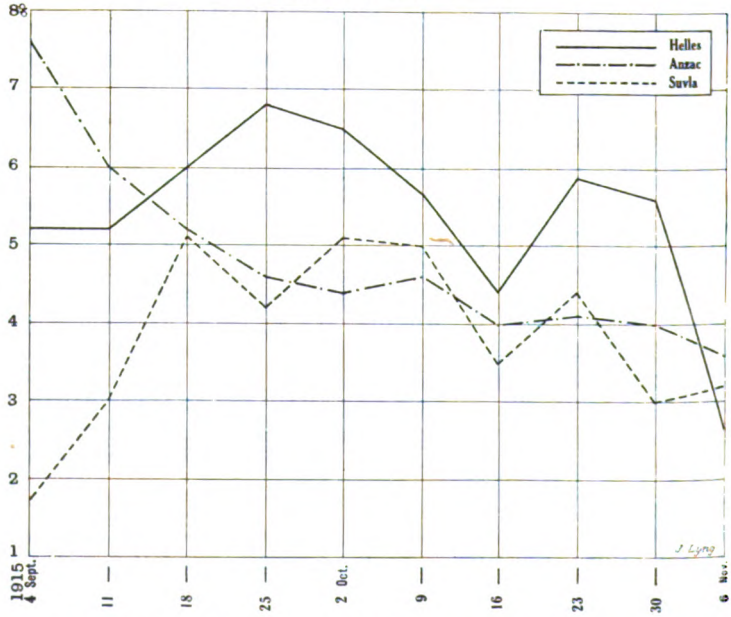
October—dysentery fades

By October the picture was changing; enteric remained high, but jaundice was replacing dysentery. "Definite improvement in health but much debility in old troops" is reported in the 3rd Infantry Brigade. Mumps, measles, scarlet and occasional cerebro-spinal fever—the inspiratory infections—and also diphtheria were met with increasingly, reflecting outbreaks in Egypt and epidemics in Australia. "Infectious" hospitals, with marquee tents, were established for these in each division. By November dysentery was rare;

Graph 4

WEEKLY RATES PER CENT OF STRENGTH, OF SICK (ONLY) EVACUATED FROM HELLES, ANZAC, AND SUVLA



These figures were supplied by the A.D.M.S. Sanitary, M.E.F., to the Medical Advisory Committee. Only those shown are available.

traced through to the base. All passed the C.C.S. with diagnosis unchanged. At the base or in England most were recognised as paratyphoid; some remained "P.U.O." or "influenza" throughout. Paratyphoid being rare in Australia, few Australian medical officers had seen such cases, and for a long time no information as to the occurrence and symptoms of paratyphoid reached the front.

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jaundice topped all disease except enteric, and though comparatively few cases were evacuated (for example, only 5 out of 87 treated in one week in the 5th Field Ambulance), it was a widespread epidemic. It may be noted in passing that the sick rates at Helles, Anzac, and Suvla during this time offer an interesting comparison.

The outstanding features of the medical organisation and service at Anzac during the final stage of the occupation were a progressive development in the opportunities afforded for effective treatment on shore, and expeditious evacuation from the beaches. In October considerable hospitals of marquee tents were established in each division, and in these hospitals cases were held in large numbers amid much discomfort and some danger.[27] Evacuation *viâ* advanced dressing stations to clearing stations at North Beach was well organised. From the beach self-propelled barges, marked with the Red Cross (which ensured full respect from the enemy), received their patients at fairly substantial piers, the serious cases being destined for hospital ship, the slighter to go by sweeper to Mudros.

The final phase—improved facilities

Facilities for field surgery were not very dissimilar to those in France. The new ideas in splinting were put into practice, and modifications were devised. New methods of treatment based on the published experience of the war were exploited. Eusol, made in the casualty clearing station, was in general use; it was found good for "Barcoo rot." From September onwards anti-tetanic injections ("A.T.S.") were given for every variety of wound.

Systematic exchange of ideas on medical matters became possible. On October 5th Sir Victor Horsley, as surgical consultant, addressed medical officers, British and Australasian, at the 1st Australian Casualty Clearing Station on "First Aid in Head Injuries." He strongly advocated, in the treatment of head injuries before evacuation, a vigorous policy in the prevention of sepsis but restraint in operative interference. The occasion was a notable one, and was made

[27] From October onwards, for instance, the 5th Field Ambulance treated 2,294 cases, of whom 757 were returned to duty.

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by Colonel Howse, as acting D.D.M.S., Anzac Corps, the opportunity of inaugurating the "Anzac Medical Society," at the first meeting of which on November 7th, attended by some fifty medical officers, the "louse" problem was discussed. This society helped to unify the service and promote professional keenness.

The Anzac Medical Society

Towards the end of October the imminence of a change in the weather was emphasised by storms and rain from the north-west, in place of the prevailing gentle south-east winds which blew off the shore. The D.D.M.S., A. & N.Z. Army Corps, was importunate in his appeals for increasing the facilities for treatment on shore. There was indeed no lack of recognition of the need for preparation, but ways and means were sadly wanting; the submarine sinkings were heavy; losses of materials of all kinds were very great. By November little had been done, except that two blankets had been issued for each man. Reporting on an army scheme for baths, the D.D.M.S., Anzac Corps, drew attention to the fact that a large number of troops were without warm clothing and overhead cover. He "viewed with the gravest anxiety the health of the troops during the winter."

Preparations for winter pushed on

On November 4th, No. 1 Australian Stationary Hospital was brought to Anzac North. By the middle of the month its diary records—

> The hospital is now prepared for wounded. We have operating room, X-Ray plant, surgical wards, and the whole is lighted with electricity. We are now preparing tunnels into the hillside. The hospital gets occasional shells, but we cannot blame the Turks, as we are in the midst of guns and ammunition dumps.

There was, in fact, no safe spot on Anzac aboveground.

The 3rd Infantry Brigade and light horse had not yet been relieved, and their condition, in spite of the lessened infection and improved circumstances, was deplorable. By this time also the 2nd Australian Division was in a bad way. The wastage in one battalion, since its comparatively recent arrival, was sixty per cent, and it had had very little fighting. The accommodation allowed on Lemnos for Australian resting troops was limited to 3,000. It was not till the end of October that the

Reliefs completed

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1st Infantry Brigade returned thence, soon to be followed by the 2nd and 4th Australian Brigades and the New Zealand Brigade, their ambulances remaining on the island. On November 19th the 3rd Brigade (less its field ambulance) and, shortly afterwards, the light horse brigades, were relieved and went to Sarpi camp.

A military consequence of disease

There remains to be described an important military consequence of the wave of sickness which accompanied and followed the heavy battle casualties of August. After the great Turkish counter-attack on August 9th, commanding officers at Anzac, in expectation of a renewal of the operations or of an enemy offensive, became intensely concerned to bring their depleted units up to strength, and demands, insistent as those of the Commander-in-Chief himself, were made from divisions and corps for "effectives" in replacement of wastage. Through the recurring crises of this campaign, the importance of the responsibility devolving on the medical service in this matter was becoming evident to combatants. In the A.I.F. the leaders at least were beginning to recognise that in the maintenance at strength of the expeditionary force—second only in importance to its strategic and tactical employment—three factors were concerned, in each of which the medical service was deeply involved, namely, the replacement of casualties by fit reinforcements and drafts; the return to duty of recovered sick and wounded; and the prevention of sick wastage.

Maintenance of effectives—a medical problem

Owing to the huge casualty rate in wounded and sick during August and September, the Australian and New Zealand formations—which before the August offensive had been brought almost to strength by hurrying forward the 6th and 7th reinforcements[28] and by considerable drafts of men returned from Egyptian hospitals at that time—had now been

[28] These had arrived in Egypt during June and July. In December, 1914, Australia had been advised by the War Office that "four months' war experience had taught that reinforcements at a monthly rate of 15 per cent for infantry would be necessary." Drafts at this rate were sent with the 2nd reinforcements and onwards. On 5 Oct., 1915, Australia received further advice that "after consultation with Sir Ian Hamilton and General Birdwood War Department calculate that a further increase in the reinforcement rate for all arms will be required—infantry 20 per cent, medical 7 per cent" (equalling four times the rate laid down in *Field Service Regulations, Part II*). In the meantime Australia

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reduced to something like half their strength. For example, the 1st Australian Division, which landed 13,300 strong and had received 7,700 reinforcements besides men who had recovered, was down to 8,500. The New Zealand and Australian Division was still more depleted. Both divisions were melting away at the weekly rate of ten per cent, and relief was the only means by which an even more severe wastage was to be avoided. Medical units, which received only two and a half per cent. of reinforcements, were much below strength at the August operations, and, being subject to the same sick wastage as the infantry as well as to considerable battle casualties, were proportionately weaker. The deficiency was further accentuated by—among other causes—the policy at the base of using all "special" reinforcements to expand the general hospitals.

The most urgent reliefs in the 1st Australian and N.Z. and A. Divisions were effected by prematurely bringing up the 2nd Australian Division from training in Egypt. In forestallment of the special drafts which were promised from Australia, but which it was realised could not arrive in time, efforts to make good the wastage took the form of renewed pressure on the base to return sick and wounded men to duty, and of an endeavour to "short circuit" the evacuation of light cases even to the intermediate base by forming rest stations on the Peninsula.[29] But feelings at the front on the matter of return of casualties from Egypt were very strong. A special return obtained from the 1st Australian and N.Z. and A. Divisions showed that large numbers evacuated early in the campaign were still absent. The reasons for this situation have already been seen: it was due partly to lack of exactness in the system (if it could at that time be called

had offered to double the reinforcements for October and November, "to make good the wastage from the landing." The increased rate asked for by the War Office began with the December "quota."

Success or failure in war depends largely on maintenance of strength. This can only be assured by an adequate and readily available reserve of effectives. Australian experience, noted above, which was accentuated by the distance of the expeditionary base from home, points to the need for building such a reserve in good time, at first necessarily from reinforcements. Its adequacy is assured only by early heavy drafts; a decrease might be permitted when a substantial floating population has been built up from men who have been sick and wounded and have recovered.

[29] The 54th Division, failing in a request for a rest station at Imbros, urged that—to obviate the loss of slightly-sick, who "if shipped off to Imbros are seen no more"—a hospital ship should be anchored permanently off the Peninsula as rest station. This also was refused, on the representation by the P.H.T.O. that it would "involve a large squadron of vessels."

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such) of convalescence and return to duty, and partly to the fact that many of the cases were not (as was imagined) fit to return. At the front it was ascribed to laxity in the Australian medical service in Egypt, "inexperience of the younger Colonial doctors", and desire of the Egyptian command to increase the force in Egypt at the expense of the M.E.F. In the campaign for accelerating the return of recovered casualties, the initiative was taken by the A.D.M.S., 1st Australian Division. As will later be seen, it afforded him —quite apart from his concern for the units of his division, now seriously under strength[80]—an opportunity for vigorous and decisive action for improving the administration and widening the scope of responsibility of the Australian medical service.

The outcry for "return to duty"

As disease reduced their strength, the new British formations became as importunate as the Australian. The probing of Egypt for the supposed A.I.F. reserves, and the suggestion of General Birdwood that the A.D.M.S., 1st Australian Division, should be appointed to assist in organising the boarding system in Egypt, were strongly resented by General Maxwell. He contended that replacement was better provided for by reinforcement than by the hurrying back of convalescents: "men returned from hospital as 'fit' are only relatively so, and not really strong enough to be in the trenches." His attitude was supported by G.H.Q., M.E.F., in respect of the return of men from the medical establishments at Alexandria and Lemnos. The Anzac and IX British Corps were both instructed to check importunity in their divisions.

General Birdwood, while he agreed to the principle "of replacing casualties by reinforcements" as "sound in theory," pointed out that his reinforcements did not even approximately make good his casualties, and he desired that all available men should be sent to Anzac Corps "till at strength." The men in the dépôts were "at any rate fitter than their companions in the trenches." Here lay the trouble. Pollution

[80] On Aug. 29 the shortage in personnel of the field medical units of the 1st Australian Division was 14 officers and 179 other ranks.

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of the stream was so rapid, discharge into the sink of disease and wastage so great, that the cistern must needs be refilled from the imperfectly purified effluent.

By September it was being realised at Anzac that outflow to England through Mudros and Malta was a more important cause of the shortage of men than delay in Egypt, and efforts were re-directed towards eliminating evacuation farther west than Malta. Partly perhaps as the result of local importunity, but much more because of the improved organisation at the bases and the general development in the army system, the whole matter was receiving close attention (which will be considered in its place). With improved organisation at Lemnos and closer relations between field formations and base administration, the individual factor disappeared; and with improved scientific investigation the fact became appreciated at the front that many of the cases called "slight" were in reality serious—that "dysenteric diarrhœa," for example, was generally dysentery.

By the middle of October the matter of strength, as an acute issue in the tactical situation, had fallen into abeyance, having become merged in the tremendous question of maintenance during winter. At the beginning of November, in the absence of heavy operations, the drafts of reinforcements and of recovered men arriving at Lemnos from Egypt and England began to exceed the numbers required, and were allowed to accumulate on the island. For the same reason the special reinforcements for the A.I.F. arriving in Egypt remained at Zeitoun. So changed had become the situation that the Australian medical reinforcements which had been asked for in September by the A.D.M.S., 1st Australian Division, had by the beginning of November become superfluous, and he informed the corps commander that, if such a draft arrived, it would be his duty to send it away.

The balance changes: drafts refused

There is no more interesting feature of the Gallipoli campaign than this military obverse to the medical problem of evacuation. The bitterness of the dispute (which never recurred in the A.I.F.) was a measure of the shortage of men at Gallipoli and of the magnitude of their waste. But

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while the primary issues raised by General Birdwood in August disappeared, the secondary developments were very important.

On November 10th the D.D.M.S., Anzac, in response to urgent instructions from General Headquarters, went to Egypt to meet the acting D.G.M.S., Australian Military Forces (Colonel Fetherston). The object of this meeting, momentous to Colonel Howse himself and to the Australian army medical service, must be left for a future chapter. On November 22nd took place a conference of the higher commanders which decided the fate of the campaign. From this time the attention of every branch of the army was directed to preparations for evacuating the Peninsula. Before describing the medical aspects of this almost unique event it is necessary to follow along the lines of communication and at the bases the streams of sick, who, since August, were cleared to the bases in numbers hardly exceeded in the history of British wars, and whose disposal created an almost unparalleled problem of medical transport by sea.

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CHAPTER XVII

THE RUSH OF SICK THROUGH MUDROS HARBOUR: DEVELOPMENT OF LEMNOS

THE rush of sick after August, finding all the hospitals in the Mediterranean already glutted and the shipping overtaxed, caused an immediate crisis at Lemnos. In spite of the existence of a fleet of over thirty hospital ships, on which the naval medical officer now in charge relied rather than on converted transports, the crisis was only met by the continued use of giant liners. In their attempts to co-operate in the work of distributing the casualties, the military medical authorities were still hampered by lack of small craft. In the stress of these circumstances the plan for intercepting the lightly wounded at Lemnos practically went by the board. In spite of these difficulties, however, and of great hardships due mainly to the lack of engineering development at Lemnos, the hospitals on that island played an important part, though not that originally intended for them, towards meeting the medical needs of the campaign. The great problem of convalescence was, during this stage, further advanced. In autumn the apparently excessive flow of casualties to England led to more vigorous efforts to develop sufficient accommodation for casualties and convalescents in the Mediterranean theatre. The deficiencies of the existing system of sea transport of casualties appear to have been on the military side rather than on the naval, but the naval medical officer was recalled and control reverted to the army.

* * *

Preceding conditions

Between August 7th and September 8th a total of 52,213 sick and wounded had passed over the lines of communication. The problem of digesting this huge intake of casualties on the top of an already congested hospital system, by absorption in "return to duty," and by evacuation to home bases, was a very large one and—it can hardly be questioned—had been underrated by the War Office.

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As reported to the Principal Hospital Transport Officer, the total number of hospital beds in the Mediterranean on September 8th was: in Egypt 26,000, largely on an "expansion" basis; in Malta 13,700; in Mudros 6,450, with convalescent dépôts for 2,000. But it must be remembered that the beds in Egypt and Malta had also to receive the sick, at this time numerous, from the 50,000 troops in Egypt.[1] The average stay in hospital[2] was 52 days for wounded; for cases of enteric 70; for dysentery 46; the average for all sickness being 29 days. Broadly stated, the passage of the casualties from some big battle through the hospital and convalescent system of a medical base occupied some two or three months.[3] The wounded, even apart from sick, had exceeded expectations by 10,000. The number was, in fact, almost exactly Surgeon-General Birrell's rejected estimate of 30,000. The system of disposal by return to duty and invaliding was still working imperfectly.

The Problem

Such was the state of repletion in which the expeditionary bases were called upon to absorb a stream of sick of quite unforeseen dimensions. The nature, number, and distribution of casualties during August, September, and October are shown in the following tables.[4]

MONTHLY EVACUATIONS: NATURE.

	Sick.	Wounded.	Total.
August	12,968	30,585	43,553
September	22,209	3,639	25,848
October	21,991	2,620	24,611
Total	57,168	36,844	94,012

[1] Largely consisting of Australian reinforcements.

[2] The figures are from the record of Australian casualties, but they are not likely to differ materially from those of the British troops.

[3] This can, for example, in connection with the casualties for the Landing, be traced in the Australian hospitals and auxiliaries in Egypt—where, as has been seen, the result of an endeavour to shorten the period of medical convalescence by premature discharge to base details was unfortunate—and in the movement of Australian casualties through the British hospital system in England after August. The calculation for hospital beds required in a campaign is determined, generally speaking, by two factors—daily admissions, and average days in hospital, the latter naturally depending on a number of conditions such as nature of casualty, invaliding and convalescent facilities, etc.

[4] Based on reports from the P.H.T.O.

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MONTHLY EVACUATION FROM MUDROS: NUMBER AND DISTRIBUTION.

	Egypt.	Malta.	Gibraltar.	England.	Total.
August ..	23,538	8,486	..	11,529	43,553
September ..	9,991	11,059	..	4,798	25,848
October ..	10,973	8,859	924	3,855	24,611
Total ..	44,502	28,404	924	20,182	94,012

Thus, out of a total of some 50,000 casualties evacuated through Mudros Harbour during September and October, no less than 44,000 were sick; their disposal was the real problem. Half-a-dozen hospital ships could have dealt with all the wounded. This huge flow prevented the attainment of equilibrium and created a situation which remained unstable till towards the close of the campaign: the margin of accommodation was perilously small; large numbers of cases were evacuated to England who should have remained; sea-transport was overtaxed; and, through the strain thrown on the organisation, there was a repetition of the defects in the treatment of sick and wounded of the first stage of the campaign.

The ships available

The task of transporting and distributing these huge numbers was, perhaps, the greatest medical problem of the campaign, and a description in some detail is necessary to a proper appreciation of the latter. First, as to the transport available. The naval P.H.T.O., who was now responsible, restricted the use of "black" ships to a minimum, very few being taken over after August. Unsuitable hospital ships were also weeded out, and other ships fitted up in Egypt and England. Close and regular supervision over the work carried out in these was maintained by consultant surgeons. In September, the officers, nurses, and medical orderlies who were left from the reserve sent out in August for staffing "black" ships were transferred from the dépôt ship to West Mudros. The chief reserve of British medical and nursing personnel was retained in Alexandria under the control of the P.D.M.S., and formed part of the "expansion" personnel of the hospitals there.

At this juncture there came under consideration the disposal of the two hospital ships which were being fitted out

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by Australia. The New Zealand Government, in accordance with the general policy adopted by that Dominion, had for a time placed both its ships at the disposal of the War Office, to be used "to the best advantage of the Empire"; and the New Zealand hospital ship *Maheno* for a time formed part of the fleet under the P.H.T.O. at the Dardanelles and in three trips carried 2,000 cases—British and Dominion indiscriminately. It was proposed by the War Office that the Australian hospital ships should be similarly employed. The Australian hospital ship *Karoola* made one trip with British and Australian invalids from Egypt to England. But the acting D.G.M.S., Australia, on his arrival in Egypt decided that Australian hospital ships were specifically for Australians, and advised his Government that, since "it was not possible to separate wounded at the front," and since "the Imperial hospital ships are much more roomy and airy and carry nearly double the number," the Australian hospital ships should be employed solely in invaliding to Australia. This policy was strongly favoured by the Egyptian Command. In view of the tremendous problem involved in Australia's 8,000 miles of lines of communication, the decision would appear to be justified.[5]

Hospital ships for Australian use

The task that faced the P.H.T.O. was now twofold—distribution of sick and wounded from the front to the expeditionary bases, and invaliding to England of men discharged from the hospitals in Lemnos, Egypt, and Malta. At a conference on September 12th between the naval and military authorities at Lemnos, "normal" casualties from Gallipoli were estimated at 800 per day,[6] of which the intermediate base was expected to take 200 (of whom, under the policy of retention for only twenty-one days, about 5 per cent left Lemnos daily for other bases). Six hundred were left for disposal otherwise, and, to dispose of these, it was estimated that the accommodation in the East must be supplemented by evacuation direct from Lemnos to England of no less than 7,000 per month, in addition to

Fleet of Hospital ships insufficient

[5] It was soon found necessary by the New Zealand Government similarly to restrict the operations of the *Maheno*.

[6] This number had soon to be increased to 1,000.

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invalidings from Egypt and Malta. Of this number the *Aquitania* could take 4,000 monthly. Of the twenty-eight hospital ships now available, thirteen would be required for clearing Egypt and Malta, leaving fifteen to maintain the "ferry service" from Gallipoli to Egypt and Malta, with one "white" ship constantly stationed at each of the three beaches. To clear the remaining 3,000 from Lemnos, the Admiralty was asked for the 30,000-ton *Mauretania* as a hospital ship to supplement the *Aquitania*. This was at first refused, as being unnecessary. But the medical situation at the Dardanelles did not clear up, and the P.H.T.O. continued to press his "white ship" policy.[1] By September 26th, out of thirty-four hospital ships available, "sixteen" (so the Inspector-General of Communications cabled to the War Office) "with the help of occasional transports and the monthly visit of the *Aquitania* barely suffice to clear sick and wounded from the beaches and Mudros." Egypt had only 3,880 beds vacant, Malta 2,157. On October 1st less than 4,000 beds were available in the Levant: on the 4th the War Office was informed that Mudros and Egypt were full, while Malta had only 525. At the same time the P.H.T.O. reported the situation to Admiral de Robeck as "serious." "I feel more anxious than at any time since my arrival, not excepting even that ghastly August week." On the 7th he reported the hospitals at Mudros, Alexandria, Malta, and Gibraltar "full,"

All hospitals become full

[1] The following is an extract from a memorandum, dated 2 September, 1915, from the Principal Hospital Transport Officer to the Medical Director-General at the Admiralty:—

"Ships allocated as Ambulance Carriers.

"On my requisition the Superintending Transport Officer here allocates them when and as he can. It is a hand-to-mouth business at best.

"Here is a typical situation. A hospital ship comes in full, and must return empty to the beaches, there being no White Ship available to replace her. The shore hospitals here are oftener than not full up, and cannot receive cases.

"I go to Senior Transport Officer and beg for a Black Ship to go to Alexandria or Malta. When he has one nearing clearance of troops and stores, he assigns her, probably for the trip only. I then requisition hands to clear her from Senior Naval Officer, and personnel and medical and surgical equipment from D.D.M.S., L. of C. The latter's resources are strictly limited, but he does his best in a modified way for the short Mediterranean voyage.

"More Hospital Ships fully equipped and fitted is the only way in which effective help can be given from Home. I foresee trouble if Alexandria, Malta, and Gibraltar get filled up and have to send some of these black ships home in the state in which they sometimes have to be despatched from here."

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Diagram No. 5

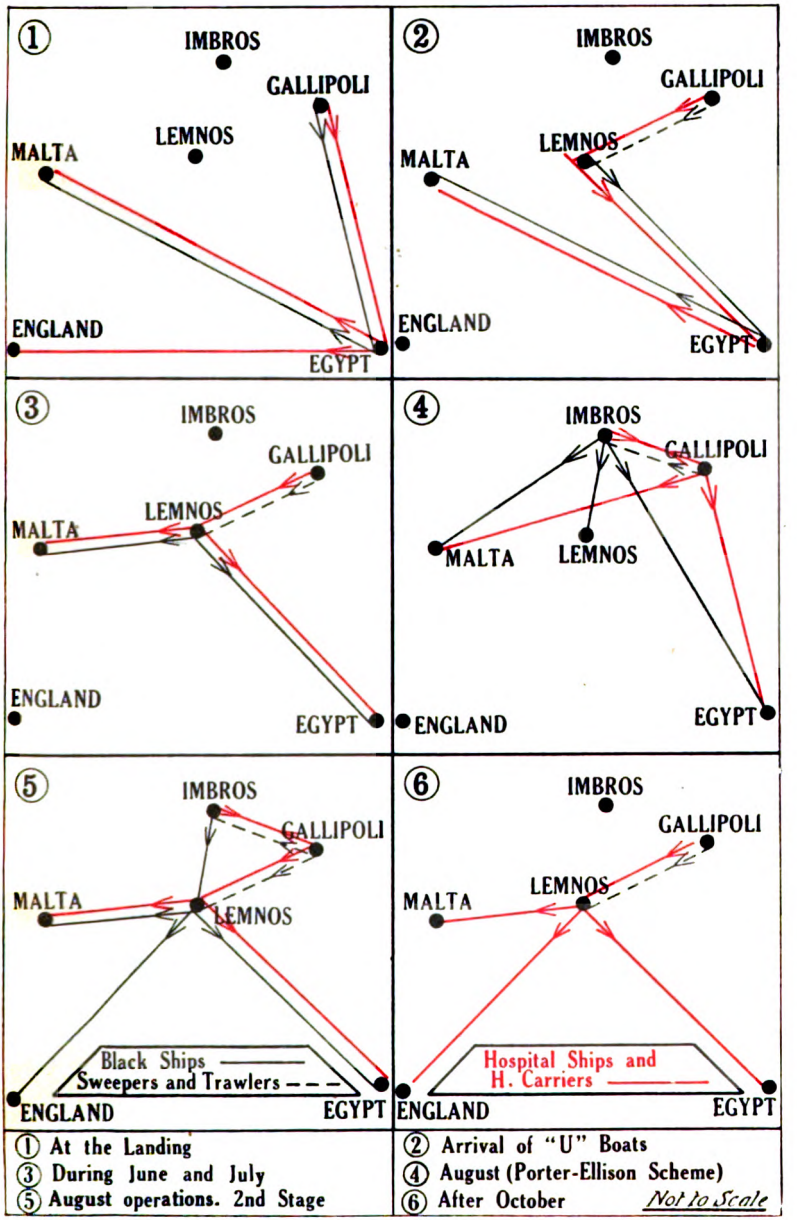

DIAGRAM ILLUSTRATING DEVELOPMENTS IN THE PROBLEM OF SEA-TRANSPORT OF SICK AND WOUNDED DURING THE GALLIPOLI CAMPAIGN

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the blockage being attributed to insufficiency of hospital ships and lack of suitable "black" ships. In forty-four of the latter, he stated, there were carried "between August 7th and October 4th 32,341 sick and wounded," and these "had to be so conveyed to save them from lying in the open."

The gravity of the situation was now recognised, and the Admiralty agreed that the *Mauretania* and six other great liners should be fitted at once as "hospital carriers." The 47,000-ton *Britannic*, building at Belfast, was taken over for use as a hospital ship for "some 4,000 invalids"; medical launches were to be obtained. The immediate tension was relieved by the arrival on October 17th of the *Aquitania*, now as a hospital carrier, whereby on the 20th 3,855 cases, of all degrees of severity, were cleared from Lemnos to England. As no heavy fighting was in progress the position at the Dardanelles was thus cleared without breakdown.

Three giant liners sent

The two Australian hospital ships (*Karoola* and *Kanowna*) were now in action, and during October they cleared 1,000 Australian invalids from Egypt to Australia. Lemnos was able to accommodate some 8,000 cases, and both there and in Egypt more effective systems of invaliding and return to duty were being developed. The congestion of August was becoming resolved. On October 31st the *Mauretania* arrived as a hospital carrier ("white") and cleared 2,102 cases, including 829 invalids sent from Egypt.

Under the new system of control by a naval medical officer (the P.H.T.O.), Mudros replaced Egypt as the centre both for the local distribution of all casualties from Gallipoli and also for all invaliding from the Mediterranean to England;[8] at the same time, under the combined administrations of the Principal Director of Medical Services, the D.M.S., M.E.F., and the D.D.M.S., Lines of Communication, endeavour was made to develop Lemnos as an effective intermediate medical base. Henceforth it became definitely the centre of medical activities

Lemnos now the centre

[8] It was decided by the War Office, on representations made by the Egyptian command, that the authority of the P.H.T.O. should not include invaliding from Egypt to Australia. This function remained in the hands of the D.M.S. for the Force in Egypt.

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in the Levant. The situation and atmosphere thus induced give a special character to the final phase of the campaign.[9]

From August onwards the development of the island for (*a*) hospital treatment, (*b*) concentration and distribution of reinforcements and of sick and wounded returning from hospital, (*c*) a dépôt of supplies, was at last pushed on with vigour and purpose. The camp at East Mudros (chiefly composed of the three stationary hospitals, convalescent dépôts, and training camp of the IX British Corps) was continued under a commandant and an assistant-director of medical services. At East Mudros were also situated several hospitals of the French force.[10] "West Mudros" became a large and important military and hospital centre. For these hospitals and for the other departments of the base extensive constructional works were needed. Wharves and ultimately stores on shore were built, a good road was made, mechanical and horse transport was assembled and organised, and eventually a light railway was constructed. Water was reticulated in the hospital area, the supply from overseas and from local wells being supplemented by large condensers. The hospital huts sent from England were erected by the Egyptian Labour Corps. But these were requirements that should have preceded, and not followed, the establishment of a first class hospital centre. On a fine site at Sarpi, partly isolated by an inlet but readily accessible to the hospitals, a relief camp for the Anzac Corps was formed in September, and there the worn formations from the Peninsula recuperated under conditions which, at first very rough, afterwards greatly improved. The huge British and French encampments overlooking both sides of the spacious harbour, with its vast array of transports, store-ships, hospital ships, and ships of war—totalling seldom

Constructional development

[9] In both of these developments the Australian force and its medical service had a particular interest, inasmuch as more than 12,000 sick and wounded of the A.I.F. were sent to England and some 40,000 to Egypt and Malta, and because the development of Lemnos was largely by Australian medical units.

[10] The French shore-hospitals at Mudros were under the control of their naval medical director. The position of this officer appears to have been exactly similar, in respect of military evacuation on sea, to that occupied by the P.M.T.O. Administration of the French hospitals on Lemnos was, however, also under the French director's control in respect of disposal of cases—whether to be "embarked overseas" or "returned to duty." The P.M.T.O., in a report to the Admiralty, remarked as "noteworthy" the fact that this officer knew the numbers of the force upon which the sick list was based, and was able to calculate accordingly, while he himself did not.

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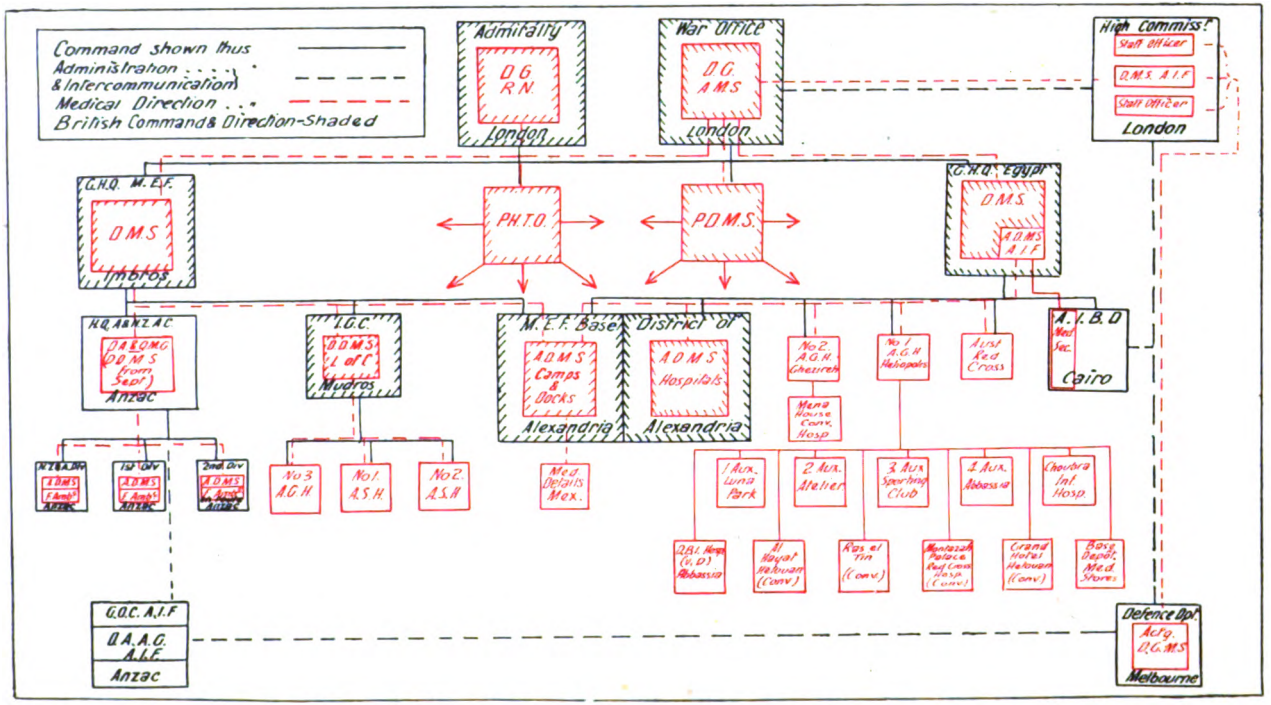

TABLE ILLUSTRATING COMMAND, ADMINISTRATION, AND MEDICAL DIRECTION OF THE AUSTRALIAN ARMY MEDICAL CORPS IN THE EAST AT THE BEGINNING OF AUGUST, 1915

Diagram No. 6

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less than 150 vessels, commonly over 200, and with a daily average of over fifty arrivals and departures—offered a remarkable spectacle of immense activity. Nevertheless, as was noted during his visit by the acting D.G.M.S., Australia (Colonel Fetherston), even by the middle of October little had been done to render the harbour more easy to work. For the transhipment and distribution of men and materiel of war there were particularly required a deep-water pier and storehouses on shore. With these, naval and military co-operation would have been, as it was elsewhere, comparatively simple. It seems likely that the verdict of the future will confirm the contention of the engineers at the time, that in the Dardanelles Campaign their work, like that of other services concerned in maintenance, received inadequate consideration.[11]

Administrative machine: a "superfluity of advisers"

While the material machinery was thus insufficiently elaborate, the administrative machine was in certain respects over-complicated. After a conference at Lemnos, during a visit paid to the Dardanelles by the P.D.M.S. at the end of August, the Inspector-General of Communications sent to G.H.Q., M.E.F., a memorandum in which he drew attention to "the complexity of the present chain of responsibility as regards the difficult problem of the evacuation of wounded." In the P.D.M.S., the P.H.T.O., the D.M.S., M.E.F., and the D.D.M.S., L. of C., he had

> a superfluity of expert advisers, the relations of whom to each other are exceptionally ill-defined;

and he asked that, "for the efficiency of the service," the responsibility for "such very important work" as the evacuation of wounded should again be made a military matter, or at least should be defined.[12] He also recommended that the D.M.S., M.E.F., should be normally stationed there,

[11] *See* evidence given at the Dardanelles Commission.

[12] Had it been recognised earlier in the campaign that the evacuation of wounded and other medical responsibilities were indeed "very important," these circumstances —and more serious troubles—might have been in some measure avoided. Two features of the situation stand out prominently as militating against successful medical administration at Gallipoli, namely, the exent to which the subordination of the medical service was pressed and its responsibilities minimised by G.H.Q., and the difficulty of naval and military co-operation. Any system of administration wherein responsibilities which are properly primary are grouped as secondary contains in itself factors that make for confusion. In the British Army, and in the Australian Imperial Force, the consequences of an essentially unsound situation were escaped only by tacitly abrogating in war this wholly secondary and subordinate position which could be enforced with impunity in time of peace.

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to be summoned by G.H.Q. to Imbros as required. This move, however, was not made till the formation of the "Dardanelles Army" and the transfer of G.H.Q., M.E.F., to Lemnos, which occurred in the last fortnight of occupation. A recommendation by G.H.Q. that the P.D.M.S. should both act as D.M.S., M.E.F., under General Hamilton and also direct medical affairs at the bases under the War Office, also lapsed. Till the close of the campaign the P.D.M.S. continued to maintain a purely personal headquarters at Alexandria and to exercise a large influence, directing the work of specialists and to a great extent controlling the demand for, and distribution of, medical personnel.

General Birrell recalled

In the office of D.M.S., M.E.F., however, a change now occurred. Its original holder, Surgeon-General Birrell, had proved unable to rise superior to his departmental position, had accepted—with a curious absence of protest—responsibility for medical deficiencies which were inevitable under the conditions imposed by the general staff, and had failed to co-operate effectively with the navy. On September 17th he was recalled, and was replaced by Surgeon-General Bedford. An elderly man, in poor health, and without experience of modern warfare, Surgeon-General Birrell, though of sound judgment on military matters "and a thorough gentleman," was lacking in the energy, forcefulness, and originality essential to such an enterprise. His administration from his office (which he seldom left) was inspired by little exact knowledge of the circumstances either at the front or on the lines of communication. He does not appear to have been taken into the confidence of the general staff.

The new machinery at work—co-operation difficult

The administrative situation at Lemnos during the next three months involved two experiments of peculiar interest. First, military evacuation on sea was placed under the Admiralty, and, second, a medical officer (the P.H.T.O.) was given independent administrative and executive authority for its direction. From the yacht *Liberty*, the P.H.T.O., with an effective staff, directed the movement of all casualties from beach to bases, working in conjunction with, but without dependence on, the Inspector-General of

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Communications and his D.D.M.S. on the military side and with the supervising transport officer on the naval side. The division of responsibility originally agreed upon, however, could not be fully carried out, co-operation being hampered by the immobility of the D.D.M.S. for the Lines of Communication, who had no launch, and by shortage of small craft for transfer of personnel, stores, and casualties. This immobility was a "serious cause of embarrassment," as was reported by the I.G.C. and also—urged with the feeble and ineffective iteration of a subordinate and slighted department—by the medical officers concerned. At the "Dardanelles Commission" General Birrell stated that the D.D.M.S., L. of C., "had to trust to reports and signals," and could neither see for himself, nor send an officer to see, that ships were properly filled. The British Red Cross Society, having obtained launches both locally and also, in June, by special application to the Admiralty,[13] "lent them, when not occupied in Red Cross work", to the D.D.M.S. It was not till late in November that effective supervision of the distribution of cases by the D.D.M.S. was made possible by the arrival of two launches for the medical service. They were the gift of the Scottish Red Cross Society and were partly maintained by it. There can be few more extraordinary instances of the handicapping of the official medical service by its acquiescence (as at the Crimea) in the lack of necessary facilities for humane ministration, while those facilities were available to the "amateur" organisation, which, though resourceful and socially powerful, was irresponsible and properly subsidiary.

Many of the difficulties at Lemnos were also manifestly brought about by imperfect accord between the administrative departments of the navy and those of the army; the total result was that much of the responsibility proper to the D.D.M.S., Lines of Communication—such as the local distribution of sick and wounded—fell on the Principal Hospital Transport Officer.[14]

[13] The British Red Cross Society had two launches at work in July. By October, 5 motor-boats, a steam-yacht of 500 tons, a steam-tug, and a steam-barge were in use.

[14] An episode early in November is illuminating as to the methods of the administration in the *Aragon*. The D.D.M.S., L. of C., was informed by the P.H.T.O. that, in a hospital ship which had arrived from the roadstead and had been

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The system of clearance from the beaches to the roadsteads was greatly improved after August. Self-propelled "hospital" barges — floored, and painted white with red cross on their sides — distributed cases to the hospital ships, which now lay almost constantly in the roadsteads, and to the service of sweepers which were used for "light" cases. All casualties went to Mudros Harbour, whence they were distributed either overseas by hospital ships or "black" ships or else by barges (or direct from the sweepers) to the stationary and general hospitals on shore.

Better transport from beaches

On the other hand an ordered and regular classification of casualties was never carried out at the Dardanelles, and this resulted in the unsuitable distribution of patients to hospital ships and carriers[15] which was a prime cause of the continuance of complaints regarding voyage conditions.

Defective classification continues

The practical difficulty of selecting cases for disposal as "light" or "serious" must, however, be recognised. The significance of the terms "fit" and "unfit" differs greatly according to circumstances; at this time the views of the front and the base on this point diverged widely. Military exigencies combined with the medical difficulties of diagnosis and prognosis to militate against exact procedure. Moreover, even a more exact classification would not entirely have solved the problem. As the P.D.M.S. records, the "first class hospitals" at Lemnos did not provide sufficient serious cases of a suitable nature to "feed" such hospital ships as the *Aquitania* and *Mauretania*. Many light cases were necessarily sent away; under such conditions Lemnos could not provide an appreciable check on their evacuation.[16]

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inspected by his hospital transport officer, most of the cases were, in the opinion of the S.M.O., so slight that a large proportion could be returned to duty, and that the vessel would be held up pending his instructions. The D.D.M.S., L. of C., replied that a verbal report in similar terms had been received by him from the S.M.O., and that he had "asked him to submit a report to this office in writing"; in the meantime the ship should proceed to the base with its cases.

[15] For example, the concentration of dysentery cases in vessels with bad latrine accommodation, to which special reference was made by the Medical Advisory Committee.

[16] At least the records of the P.H.T.O. show that during August, September, and October more casualties left Mudros Harbour for Egypt, Malta, and England than reached it from Gallipoli.

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Nevertheless, partly in response to pressure from formations on the Peninsula and shortage of effectives, but more because the circumstances at the intermediate base permitted of such development—the disposal of convalescents, and in particular the question of the return of recovered men to duty, was taken seriously in hand. The lines followed were the same as those recently put in force in Alexandria, Cairo, and Malta.[17] They embodied experience in Europe during the first year of the war. By the end of 1915 it was being realised in Great Britain, as in all the belligerent nations, that the war must be a long one, and the conservation of man-power a vital problem. Return to duty, like the examination of recruits, was being organised with an exactitude and comprehensiveness in keeping with other developments of a war in which the army was the nation itself. Under this system soldiers discharged from hospital at Lemnos and the M.E.F. bases were to be classified "A," "B," or "C," that is to say, "fit," "fit for service on the lines of communication only," and "invalids for home" respectively. The "A" class at once "automatically became reinforcements"; those classed as "B" were to go to "the convalescent camp at Mudros" and be examined once a week by a standing medical board until final classification as "A" or permanent "B"; the "C" class were to be sent to England, Australia, or New Zealand, as the case might be.

"Return to duty" organisation at Lemnos

A further stage, and that a cardinal one, in the matter of the return of the convalescent to duty was reached in the principle laid down by the War Office and embodied in M.E.F., general routine order of September 8th, whereby "A" class convalescents

Convalescent camps and base depots

automatically become reinforcements, and will be sent to rejoin a Base Dépôt at the Intermediate Base. They will be shown in Base Dépôt returns as "unfit," until such time as the O.C. the Base Dépôt considers that they are actually fit to join their units in the Field.

This recognition of the necessity of further preparation after "convalescence" was the germ of the great command-dépôt system—one of the most significant developments of this war.

[17] That is, they were those laid down in the M.E.F. order of July 25 and in subsequent amendments of it (*see pp. 227 and 408*).

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In September, in pursuance of the policy of promoting rapid return to duty by concentrating convalescents at Lemnos, "advanced divisional base dépôts" were established, including one for the Anzac Corps. These received reinforcements arriving in drafts from overseas and distributed them to their units and formations on Gallipoli and on Lemnos. They did the same with "B" class men returned from the hospitals in other bases for convalescence at Lemnos. They also received recovered cases discharged from the local hospitals. The systematic re-boarding of the "B" class, and some re-training of the "A" class, were carried out at the convalescent and base dépôts, and though the number of convalescents sent to recover in the more "salubrious climate of Lemnos" was not large—chiefly because Lemnos was grossly insalubrious—some effect was thus given to the policy laid down. Though all the hospitals on the island served in some degree the dual purpose adopted for the intermediate base, from September onwards the policy of diverting to Lemnos light cases for local treatment was specially met by the stationary hospitals at East Mudros. This filter, however, often gave way under pressure. Thus from No. 1 Australian Stationary Hospital 500 were sent in a single day to fill up the hospital ship *Aquitania*. Only the convalescent dépôts on Lemnos and the clearing station on Imbros corresponded to the light-treatment centres asked for from the front. The purpose of the convalescent dépôts also was rather for recuperation after discharge from hospital than for the treating of selected light casualties coming direct from the front.

In Lemnos, as in Egypt, there was ample local employment for men unfit for the field. "B" class men, both those from the local hospitals and those sent from Alexandria base, were used for the "expansion" of the hospitals.[18] The question of so using Australians of the "B" class at Lemnos was mooted, but on the advice of the D.D.M.S., A. & N.Z. Army Corps (Colonel Howse), was negatived by the

[18] Practically all the expansion of No. 2 A.S.H. in August was by means of British "B" class infantry, who worked under the nursing sisters and the trained medical orderlies.

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G.O.C., A.I.F. (General Birdwood), on grounds already mentioned—that their high rate of pay rendered it uneconomical.

Hospital accommodation on Lemnos

It remains to describe the hospital accommodation and treatment on the island, in which Australian units played a most important part. By the end of September the medical units on Lemnos consisted of the following. At East Mudros were two British and No. 1 Australian Stationary Hospitals, working without female nursing staff, but each "expanded" to a normal of 1,000 beds, receiving chiefly slight cases from sweepers. With these hospitals was a convalescent dépôt. At West Mudros, on "Turk's Head" promontory high above the harbour, an imposing tented and hutted hospital centre had been built up. Here No. 3 Australian General Hospital, No. 2 Australian Stationary Hospital, and two Canadian stationary hospitals and one British, became effectively established, working with female nursing staff. After the crude beginnings which have been described they were for the most part gradually organised, housed, and equipped to carry out the treatment proper to general hospitals. The convalescent dépôt at West Mudros accommodated from 1,200 to 2,000. The establishing of bacteriological laboratories and systematic oversight by the numerous consultants, surgical and medical, had helped to raise the standard of diagnosis and treatment. From the middle of September the West Mudros hospitals ceased to receive any considerable number of wounded, and were looked upon largely as a reserve against emergency; they treated the cases of sickness —chiefly typhoid and dysentery—not only from the Peninsula but, to an increasing extent, from the local reinforcement dépôts and relief camps. In October the Director-General of Army Medical Services at the War Office suggested that the surgeons of No. 3 Australian General Hospital should be sent to Egypt. The senior surgical staff was disbanded, the senior surgeon returning to France as a "Consultant Surgeon, B.E.F."

By October, with the discovery that mitigation of the fighting was to bring no relief to the congested hospitals of

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Floodgate remains open

Egypt and Malta, those on Lemnos became chiefly feeders to a regular service of huge liners, of draft so great that they could not enter Alexandria or Malta harbours but cleared from Mudros Harbour direct to England.[19]

Hospitals in October

At the end of October beds on the island were estimated at 9,000, including some 2,000 in convalescent dépôts. Such numbers could, however, be treated only in emergencies. Large stocks of medical equipment and stores were now available. From September onwards No. 3 Australian General Hospital held an average of 1,000 cases, for the most part enteric and serious cases of dysentery, which after three weeks' treatment were cleared to England or Egypt. No. 2 Australian Stationary Hospital, occupying sixty large marquee-tents, had been reinforced, and its staff included twenty-five nursing sisters, making some 130 Australian nurses now on the island.[20]

By the end of October all the "first class hospitals" at Lemnos were treating sick and a few wounded under conditions approaching those of Egypt and Malta. The acting D.G.M.S. for Australia found the Australian hospitals "in very good lined hospital marquees, the patients comfortable, good beds and bedding. Were it not for the food and general unsanitary surroundings, they could not have been more comfortable."

The quality of the bread and other rations gradually improved, as did also the supply of medical comforts. The difficulties of invalid diet were greatly eased by increased Red Cross supplies.[21] As tentage, equipment, and food improved,

[19] During 1915, 78,431 sick and wounded were sent to England from the Mediterranean theatres of war and garrisons (the total from all theatres being 352,677); of these 12,138 were Australians.

[20] On October 17 in No. 3 A.G.H. there were 1,217 in hospital, and "for reasons of tentage and lack of equipment" it was impossible to admit more in this or the other hospitals "till the arrival of the H.S. *Aquitania* should relieve beds."

[21] On July 5 the "A.D.M.S., Australian Force" in Egypt suggested a Red Cross store at Anzac. General Birdwood considered this impossible, but recommended a store at Mudros. On August and the O.C., No. 1 A.S.H., was asked to act as representative at Mudros for the Australian Red Cross, and shortly afterwards a quantity of material arrived. By the end of September the Australian Red Cross commissioners had sent "four large consignments to Mudros in care of the B.R.C.S. there for use in Australian Hospitals in Lemnos and the

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it was possible to provide in the general hospital some of the comforts and amenities looked for in such units. A nurse records of this time that

> things were now working more smoothly throughout, and we were able to devote a little time to the outside of our tents and to our wards; and competition set in as to whose should be the nicest.

A medical officer also notes:

> From October the weather became cooler and the fly plague abated. Beautiful warm days and cool nights with most gorgeous sunsets and sunrises. The staff, reduced through sickness, was kept fully engaged; but as all had settled down to the life, things went very smoothly. The rest camps at Sarpi were established and the hospitals became great rallying places.

Specialisation

As time went on the functions of the various hospitals on the island had been delimited; No. 3 Australian General Hospital for example, now fully equipped, took all typhoids occurring at West Mudros. This unit also continued to carry out the important pathological work described elsewhere. Owing to the paucity of surgical cases its splendid X-Ray department (controlled by the leading radiologist in Australia) was comparatively unemployed. The ophthalmic and dental departments were fully occupied, their importance under military conditions—hitherto imperfectly appreciated—being made manifest. Middle ear disease was very prevalent. The problem of visual standards and the replacement of spectacles was at this time acute, and useful suggestions were made to the ophthalmic specialist to the Mediterranean Expeditionary Force. This officer, finding "a most efficient ophthalmic department" at No. 3 General Hospital, which was equipped with a Haab magnet, obtained the consent of the P.D.M.S. to an order that all cases of ocular injury should be put ashore at Lemnos and treated there.

Peninsula." In October an Australian Red Cross commissioner visited Lemnos, where he opened a "dépôt." Two large storage huts were erected on the island. Of the Red Cross stores sent up, No. 3 A.G.H. between 10th and 26th October received:—

Tinned rabbits	1,032 lb.
Tinned fruits	2,000 ,,
Dried fruits	1,000 ,,
Biscuits	3,150 ,,
Dried milk	150 ,,

In November an Australian Red Cross representative was stationed at Lemnos "to attend to the distribution of our goods at Mudros and Anzac." A representative was also stationed at Malta.

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Dental work at Lemnos

The dental department of No. 3 General Hospital was even more in demand. A "dental unit" had been formed in London from personnel on the staff, and two complete dental outfits purchased with Red Cross funds. A second "unit" arrived from Australia, and on September 1st dental work was commenced in a good hut. The two Australian dental units were well equipped and organised, but the demands were infinitely more than could be met by their utmost combined efforts, though supported by a British and two Canadian dentists. British troops and many officers and personnel from the navy were treated. At the end of September there arrived the brigades relieved from Anzac, with from twenty to thirty per cent requiring "urgent dental attention." The D.D.M.S., Anzac Corps, reported that the Lemnos dentists were now "absolutely unable to cope with the work," and asked that "urgent representation might immediately be made to reinforce their numbers." Large numbers of cases of pyorrhœa were treated. Shortage of dental supplies, in spite of special instructions given by the Commander-in-Chief himself as early as June, was a serious drawback.[22] In all, 6,283 cases were attended, including 3,500 stoppings; 514 dentures were made or repaired.

Lemnos hampered by local sickness

The activities of the intermediate base and the work of the hospitals were seriously hampered by a local epidemic of intestinal infections, little less general than on the Peninsula.[23] In the eleventh-hour rush to prepare West Mudros for the August operations sanitary provision had gone by the board. Later, the opportunity offered by the virgin site at West Mudros had not been accepted with scientific insight and exploited with administrative energy. Sanitary methods were stereotyped and were imperfectly enforced. There had been much fouling of unoccupied ground, and anti-fly measures were not taken seriously. As elsewhere in this campaign, sanitary efforts were paralysed—or at least paresed—by an absence of real conviction that sanitary measures

[22] Dental work, except at the base, was almost unknown in the British Army at this time, nor were dental supplies held by dépôts of medical stores.

[23] The acting D.G.M.S., Australia, inspecting in October, reported to the Defence Department that "on account of the danger of contracting disease in hospital . . . the island is not suited for surgical work."

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were "worth while"—an attitude chiefly due to lack of exact knowledge. The sanitary system of a large general hospital is properly an engineering responsibility; the hospital itself has only to carry out the details of the method laid down, and to control its own internal hygiene. But at Lemnos, the medical units were self-contained in regard to sanitation, and the situation, at least at No. 3 Australian General Hospital, had not been met by vigorous initiative.

The arrival of the Medical Advisory Committee and the Entomological Commission galvanised this *laissez faire* into somewhat more robust effort. After exhaustive investigation of the water-supply the Advisory Committee incriminated the fly;[24] the Entomological Commission showed exactly how it could be kept in check. Considerable improvements were made, and fly-proof latrines became general, but, though two sanitary sections did their best, sanitary discipline was never enforced at Lemnos with the relentless determination due to an enemy with such grave potentialities. For the most part the ration, and food in general, on Lemnos differed little from those on the Peninsula. Fresh meat was no more frequent; bread was at first of poor quality; vegetables and fruit were scarce; but there was some opportunity for local purchase denied to Gallipoli. From October onwards the supplies greatly improved.

Hospital staffs affected

The hospital staffs themselves were much reduced by this sickness. Up to November 15th almost sixty per cent of the male staff in No. 3 Australian General Hospital had been treated in hospital and many invalided. Out of thirty-six medical officers only three escaped; eleven were sent sick to England. Sickness was so much less in the female than in the male service that a committee of the hospital staff, appointed to investigate the cause of the excessive sick rate among its members, made special inquiry into the reasons for this disproportion, which it found to be due to the much greater care taken by the women in the details of domestic cleanliness and hygiene. The experience of other medical units at West Mudros as regards sickness

[24] Outbreaks of "dysenteric diarrhœa" occurred in the warships in the harbour, which were self-contained in food and water and free from dust but drew (as the Committee noted) a large fly-population from the shore.

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was practically identical with that of No. 3 General Hospital. At No. 1 Canadian Stationary Hospital the matron and two orderlies died of dysentery.[25] In all the Australian hospitals the heavy wastage brought about a need for reinforcements much above the normal two and a half per cent, and a difference of opinion between Egypt and the M.E.F. on the question of responsibility for reinforcing these units led to an administrative deadlock on the matter.[26]

Summer requirements, particularly for sanitation, had scarcely been met before winter problems became pressing.

Preparations for winter

The Canadian sisters were well housed in huts, and the kitchen and special departments of No. 3 Australian General Hospital were also hutted; otherwise all hospitals were in tents, and the outlook for a Lemnos winter was serious. Upon the acting D.G.M.S., Australia, making representations, a hutted site for No. 3 General Hospital was promised, as well as better conditions for its nursing staff, those in existence being of such a nature that he made the further employment of Australian nurses on Lemnos conditional on their improvement. At the beginning of November, as part of the preparations for the expected winter isolation of the force on Gallipoli, No. 1 Australian Stationary Hospital was sent to Anzac. From its arrival early in March this unit had played an important part in the medical work on the Island.

On November 19th, nearly seven months after it had landed on Gallipoli, the 3rd Australian Infantry Brigade,

The last Gallipoli reliefs

and, soon after, the light horse, having been relieved by the 1st and 2nd Australian Brigades and the New Zealand Brigade —whose "rest" had lasted two months—came to Sarpi camp. The regimental medical officer of one battalion estimated that, including recent reinforcements, from thirty to forty per cent of the men were unfit for efficient work.

[25] Of the sickness at No. 3 A.G.H., 50 per cent was gastro-intestinal infection, including 15 per cent enteric; 10 per cent jaundice, 15 per cent influenza. Two cases of beriberi occurred, one in the person of the commanding officer, who by special precautions as to diet escaped the vortex of intestinal infection, only to be broken, with narrow escape of his life, on the hard rocks of vitamin deficiency. The other case of beriberi was in a nursing sister. Minor manifestations of food defects were not uncommon.

[26] *See pp. 405-6.*

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58. NORTH BEACH, ANZAC, LOOKING TOWARDS SUVLA

The tents in the foreground are those of No. 2 Australian Stationary Hospital, and in the distance those of the 16th British Casualty Clearing Station. The distant ridge is Kizlar Dagh, near Suvla. A hospital barge may be seen at Walker's Pier.

Taken by Pte. H. J. Lowe, 1st Aust. Rly. Supply Detachment.
Aust. War Memorial Collection No. A1867.

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59. The 4th Field Ambulance rest station at Little Table Top in the new Anzac area, October 1915

Taken by Sgt. H. V. Woods.
Aust. War Memorial Collection No. C679.

60. Colonel N. R. Howse (*left*) and Sir Victor Horsley (*centre*) at Anzac on 15th October, 1915

Lent by Lieut.-Colonel P. Fiaschi.
Aust. War Memorial Collection No. H13989.

61. Medical officers assembled for the initial meeting of the "Anzac Medical Society" at North Beach, 15th October, 1915

Sir Victor Horsley lectured on gunshot wounds of the skull.

Lent by Lieut.-Colonel B. Quick, A.A.M.C.
Aust. War Memorial Collection No. C1603.

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The same proportion were able "to carry on if not pressed," and from twenty to thirty per cent "in good health." The conditions on the island were by this time favourable to recuperation; food was sufficiently varied; canteen stores were available. A fine reception tent established at Sarpi by the Y.M.C.A. provided recreation. As on the Peninsula, disease was now at a minimum. The heat, flies, and dust of summer had passed; gastro-intestinal infections had almost disappeared. The epidemic of jaundice alone was active, and the disease was very prevalent on Lemnos.[27]

Lemnos problems change

By this time evacuation from the Peninsula had fallen to three per cent per week. The problem of "return to duty" had disappeared, and ample accommodation was available for all casualties. Hospital ships were for the moment equal to all demands, including those of Salonica. Vessels for the requirements of the winter scheme were being prepared by the Admiralty. A reserve of beds had been built up on Lemnos, where the "Babtie Dardanelles Hutted Hospital" was coming slowly into being. On November 30th No. 27 British General Hospital arrived and occupied a hutted site prepared for it beforehand, but the promise to hut No. 3 Australian General Hospital had not yet been fulfilled, and the nursing staff was still housed in unlined bell tents and was without even warm uniform. Winter gales had begun, cold was severe, and the break up of the season imminent.

Summary—a medical compromise

Summarised, the development of Lemnos as an intermediate medical base well illustrates the element of antagonism inherent in the two fundamental responsibilities of the medical service—humane alleviation on the one hand and the promotion of victory on the other. The policy initiated by G.H.Q., M.E.F., in July, of developing the island for the treatment of "10-12,000 light cases" to prevent wastage was in response to a purely military need, while that favoured

[27] The occurrence of a few cases of mild diphtheria in Sarpi camp was met by preventive measures of a peculiarly unimaginative kind. Without other action, a strict quarantine was imposed by the A.D.M.S., Intermediate Base, West Mudros, and was enforced by a cordon of armed guards, the brigade after its seven months on Gallipoli being, in the words of a regimental medical officer, "left to stew in its own juice." Permission was refused even for attendance of men at the aural and dental clinics at the hospital.

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by Surgeon-General Babtie, namely, of establishing fully equipped hospitals within the actual area of operations, was devised to serve the needs of the gravely wounded and seriously sick. The development of the intermediate base was in fact a compromise. The P.D.M.S. promoted an ambitious scheme for a "Dardanelles hutted hospital" system at West Mudros. Meanwhile an endeavour was made to meet demands from the front by providing for the treatment in less highly organised units, of "light" cases brought by the service of sweepers, and by an organised system of convalescence and return to duty. Much was achieved on both counts, but full success in neither. The comparative failure of the hospitals on Lemnos during the supreme crisis in August to fulfil the object of humane alleviation has been indicated in a previous chapter. At the same time Surgeon-General Birrell complained that, "except the British" (No. 18 Stationary and the "Lowland Convalescent Dépôt"), the hospitals at West Mudros were "hardly what was wanted there," as they were "more on the lines of general hospitals, while big expansion for slight cases alone was what was aimed at."

Its partial success

The importance of Lemnos as a medical centre, which had been steadily growing, reached its zenith in connection with concluding scenes of the campaign. Much had been left undone that might have been done. There had been delay and much confused and ineffective administration. But to the intermediate base must be credited a large number of serious cases well treated near to the front, and the fact that an important reserve of beds had been built up and was available for a great emergency. The safety-valve outlet from the East by the use of the large liners had been made possible. A large local incidence of sickness had been provided for. In the laboratories problems had been investigated at the proper place —near the front where they had arisen.

And while the intermediate base had failed to sift out any very great proportion of light cases from among those evacuated, it had prevented wastage, though in a manner which illuminates the handicaps under which this unfortunate campaign was carried through. In the first relief of the

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Australian formations between September 11th and 17th some 5,500 men in all—remains of three brigades—had gone to Sarpi relief camp. On the 22nd General Headquarters pointed out to Anzac Corps that its proper allotment of relief was for 3,000 only, and desired to know "on what date you propose to withdraw the men now resting at Mudros. Your men are occupying practically all the accommodation that I.G.C. has now available for resting purposes." The reply from General Birdwood was that it must depend entirely on the recovery made: that the corps had expected much greater facilities for giving relief to its units, and was able and desired to make full use of such.

Instead of two weeks, it was two months before these "resting" troops had been fit to return: Sarpi "rest camp" became, in fact, a convalescent dépôt—"relief" a substitute for evacuation.[28] It is hardly possible to exaggerate the evil effects of failure to give adequate relief to the formations on Gallipoli. Its influence as a factor in the physical and mental condition of the troops had been very great and was certainly imperfectly appreciated by the higher command. But the failure is also in a large measure attributable to the miserliness in the supply of men (as of munitions) that characterised the conduct of the campaign.

Impossibility of separating colonial patients

During the occupation of Lemnos Australian hospitals provided almost half the total accommodation, admitting British and Dominion troops without distinction. Thus, of 3,906 cases admitted to No. 3 Australian General Hospital up to October 15th, 30 per cent were Australian, 13 per cent New Zealand, 57 per cent British and Indian.[29] The circumstances were indeed such as to illustrate the futility of pressing the policy of "Australians to Australian hospitals," even if otherwise it were held desirable. Reporting to his government, the acting D.G.M.S. for Australia commented on the fact that "even in this small place it is impossible to discriminate."

[28] It is scarcely, therefore, a matter of surprise that in the last phase of the campaign few of the cases evacuated from the original formations were found fit to return within 21 days. The term "light," or "slight" case, always uncertain and difficult of definition, was in this campaign beyond ordinarily vague and inexact.

[29] The total deaths were 77, or 1.97 per cent.

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Towards the end of the period dealt with in this chapter the necessity for a sweeping change of policy became, for several reasons, evident.

Sweeping change—all local resources to be developed

Between August 7th and November 11th 96,943 sick and wounded had arrived in Mudros Harbour from the beaches. During the same period—including cases from the Peninsula passed through the Lemnos hospitals, and sick from Lemnos itself—100,258 sick and wounded had left the harbour, 44,731 for Egypt, 32,319 for Malta, 924 for Gibraltar, and 22,284 direct to England. The crisis which had necessitated the transport of so many sick by giant liners to England had caused the War Office to become fully alive to the situation at the Dardanelles, and to the extent to which clearance to England had now replaced the development of the local resources in the Near East. The Director-General of Army Medical Services found it necessary to draw the attention of the P.D.M.S. to the large number of light cases arriving in England, and that of the D.M.S., M.E.F., to the importance of his responsibilities in connection with return of recovered convalescents to duty, as well as the need for uncompromising efforts to check the flood of disease. Arrangements were pushed on for making the Eastern theatre of war more self-contained. It being now autumn in Egypt, and the climate ideal for convalescence, the War Office agreed to the request of the Australian Government—made on the advice of the Australian consultant physician in England, Lieutenant-Colonel H. C. Maudsley—that during the winter months men temporarily unfit from the Australian Imperial Force should not be sent to convalesce in England but should be retained in the East. Associated with this decision, a general policy of expansion for convalescence in Egypt and the Mediterranean was adopted. At the invitation of the Italian Government a special commission made arrangements for British convalescent hospitals in Sicily; the resources of Upper Egypt were exploited. At the beginning of November the P.D.M.S. reported to the War Office that convalescent accommodation for 17,000 was being developed. To meet the requirements of the wide theatre of war in the East, a

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minimum of 12,000 vacant beds in Egypt and Malta was urged on November 15th by the D.M.S., M.E.F., and the Inspector-General of Communications, only 2,000 being at the time available. It was further urged that hospital ships for 6,000 should be kept constantly in Mudros Harbour—a provision which would involve a scheme of no less than sixty hospital ships, including the *Aquitania*, *Mauretania*, and *Britannic*, for the various operations in the Levant. The P.H.T.O. had previously suggested fifty-four as necessary for winter requirements.

Sixty Hospital ships suggested

With the diminishing sick-rate in November the problem of sea-transport gradually cleared, in spite of winter difficulties on shipboard and heavy evacuations from Salonica. The huge intake of sick had been as difficult to digest as had been that of the 30,000 wounded during August. But by the end of November equilibrium was reached and a reserve of beds was available in the East—just in time for the menacing possibilities associated with the evacuation of the Peninsula, and for a grave and unexpected emergency, the nature of which will appear later. Clearance to England, since it monopolised a vessel for a month, was the most difficult matter. As autumn came—when the patients could not be placed on deck—over-crowding occurred, and complaints gave the War Office an opportunity for again pressing a reversion to the arrangement whereby the army controlled the lines of evacuation on sea as well as on land. Though the Vice-Admiral supported the Principal Hospital Transport Officer, the consent of the Admiralty to his recall was ultimately obtained.

P.H.T.O. recalled—his good measure of success

The naval and military questions raised by the appointment of this officer are of great importance and interest[30] but are outside the scope of this work. It may be observed, however, that the advantages secured for combined operations by naval medical responsibility for sea lines of evacuation

[30] The experiment of naval control of the sea-routes of military evacuation worked to the satisfaction of those most intimately concerned. The other experiment to which reference has been made—that of direct administration by a medical officer—proved, at least in the opinion of the navy, not unsuccessful. The essence of the problem lay in a clear differentiation between evacuation of casualties and movement of troops: it could only be solved by the use of special medical transport as a routine for serious cases and of "returning empties" as supplementary or for emergency only, and for light cases. This was the policy endorsed by the Admiralty and, so far as circumstances permitted, resolutely carried out by the P.H.T.O.

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should not be discounted merely because of complaints regarding evacuation to England at this time, since these were chiefly concerned with deficiencies in staff or equipment and with defective distribution of casualties, all of which were military responsibilities. The defects which ostensibly brought about the reversion to military control were in fact inherent in the failure to foresee the holocaust of disease and either prevent or provide for it by local hospital development; just as in April and May the much more serious defects—which had brought about the appointment of the Principal Hospital Transport Officer—and those in August were due chiefly to the failure to foresee and prepare for the number of casualties. It should also be noted that, during this period, the circumstances of sea-transport of sick and wounded in the Mediterranean, though not ideal, were far better than during the first stage of the campaign. The acting D.G.M.S. for Australia was, in view of the past, prepared to be critical; but from personal observation and inquiry he reported in October to his government that in the hospital ships—in which, after September, the vast proportion of sick and wounded were carried—while little was attempted in the way of surgery, all patients were "well cared for on the voyage." There has hardly been a due appreciation of the stupendous difficulty of the maritime medical problem; of the magnitude of the achievement of the British Navy, handicapped as it was, beyond all that was "fair" even in war, by the iniquitous submarine policy by which a merchant vessel, and even a hospital ship might be "spurlos versenkt"; or of the diversity of the demands which were met, on the whole successfully, by the naval and military administrative and medical services in co-operation. On the other hand, the defects have been made sufficiently, perhaps unduly, prominent through the Dardanelles Commission.

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CHAPTER XVIII

EGYPT: AUGUST TO DECEMBER

THE two waves of wounded and sick respectively, arriving in Egypt, each caused a crisis in respect of hospital accommodation, but the situation was relieved, as at Lemnos, by the opening of the flood-gate sending on the flow to England. The first crisis found the Australian medical service in Cairo in the midst of reorganisation by which the group of hospitals centring on No. 1 A.G.H. was broken up and more normal military organisation resorted to. This reform, though carried through on the initiative of the P.D.M.S. (Surgeon-General Babtie), did not provide any continuing direction for the A.A.M.C., and a crucial situation at once arose over the rival claims of Egypt and of the M.E.F. for medical reinforcements from Australia, upon which no local administrator had authority to determine. In spite of these disadvantages, treatment and the system of invaliding improved. The Australian hospitals and auxiliaries in Egypt filled with success the double need of the troops in Gallipoli and of the large Australian garrison and base in Egypt, where sickness reflected to an interesting degree its several sources in Gallipoli, Egypt, and Australia. Further steps, although still inadequate ones, had also been taken towards solving the great problems of invaliding and of return to duty.

* * *

Immediate crisis in Egypt

Although even at the time of the August operations Lemnos had displaced Egypt as the centre of distribution and of administration, Egypt still remained the chief reservoir within the expeditionary area for casualties and replacements in the M.E.F. The first wounded from the August operations reached it on the 10th. From the beginning of the month, however, the normal inflow had been greatly augmented; 3,500 casualties, chiefly sick, arrived between the 4th and 9th by hospital ships, the last being the *Gloucester Castle*. On the 10th came the first ("black") ship carrying 1,833 wounded at Lone Pine and other feints; on the 11th the

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hospital ship *Sicilia* and two carriers brought 2,633: a cable from the Lines of Communication reported 1,700 following. Upon this the P.D.M.S., at Alexandria, cabled that Egypt was "congested"; but he was informed in reply that in the meantime, 9,500 more had been sent there; that Malta, though with only 1,350,[1] was "reported full"; Lemnos with 2,700 was "choked up"; and the situation on the lines of communication "critical." On the 12th and 13th 6,178 arrived in Egypt, making a total of 10,132 since the operations commenced. To clear of invalids the congested group of hospitals at Alexandria, empty troopships were sent from Lemnos. On August 13th the D.M.S. for the Force in Egypt informed the P.D.M.S. that he had "come to bedrock" in Cairo in respect of hospital beds, though 2,000 would be ready in four days.[2] But the stream from the front was already passing through its emergency by-wash channel direct to England, and from this date till the end of the month an average of only 400 per day were sent to Egypt. For these a precarious balance of empty beds could for a time be maintained by expansion of some of the hospitals, by increased evacuation overseas, and by discharge to the dépôts.

At Alexandria—normal development

During August, in all, some 22,400 casualties, sick and wounded, disembarked at Alexandria and were distributed in nearly equal numbers between Alexandria and Cairo. At Alexandria, where the majority of seriously wounded were retained, medical arrangements were by now thoroughly efficient. The four British general hospitals—"among the best in the British Army"—were well equipped for dealing with large numbers of wounded. The staff had been augmented, and, as in France, their work was supervised by eminent civilian practitioners, who were given army rank as "consultants," working under the P.D.M.S. As at the Landing, disembarkation was well organised and carried out. The staff at the docks was reinforced from the 2nd Australian Division and 4th Light Horse field ambulances, which, by reason of the fine physique and keenness of their men, worked with two bearers to a stretcher instead of four and were

[1] The personnel for expansion for these operations did not reach Malta until later.

[2] When a Canadian stationary hospital and No. 4 Australian Auxiliary would be working.

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prominent in the strenuous work done at this, the final "lock" before distribution. Australian and New Zealand motor- and horse-ambulance waggons—the latter found more suitable for serious cases over cobbled roads—again did almost all the local transportation.[3] Six ambulance trains were now running, on which the Australian Red Cross maintained refreshment cars.

Cairo—the Australian hospitals

The greater number of the beds which the authorities in Egypt had estimated as free for the August offensive were in the Cairo centre, and the Australian medical units in particular were reckoned on to absorb a large proportion of the less serious cases. Unfortunately the crisis of the campaign found the Australian medical service in Egypt in process of local reorganisation and rearrangement. When the wounded arrived, the capacity of these hospitals for dealing with a rush was little greater than at the time of the Landing. Preparations for expansion were slow. The special drafts of medical personnel asked for in May did not arrive till July 18th. Moreover through limitation of opportunity for invaliding overseas, invalids and convalescents had accumulated in hospitals and convalescent homes.

At the beginning of August Mena House was reopened for the operations, to accommodate 400. On August 1st the Egyptian Army Barracks, Abbassia, were taken over by No. 1 Australian General Hospital as "No. 4 Auxiliary," accommodation was prepared for a few hundred cases, and the 6th Australian Field Ambulance installed as staff. On August 6th a fine civil hospital at Choubra was taken over as an infectious hospital,[4] and the staff and cases from No. 3 Auxiliary were transferred thither, while the latter reopened on August 10th as a very fine pavilion hospital for 850 light cases. The wards of the two general hospitals and the auxiliaries were cleared so far as possible. An eminent British surgeon, Colonel V. Warren Low, was detailed to act as consultant. The facilities for ministration in the auxiliaries had greatly improved, but they were still suited only for taking convalescents and light cases.

[3] Ten British motor-ambulance waggons arrived at this time, forty more soon after.
[4] After a fortnight made an "Imperial" unit.

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The greater portion of the preliminary rush of sick were sent to Cairo, and, when the wounded arrived the beds available were soon filled to overflowing. Of No. 1 Auxiliary (Luna Park), the P.M.O., Cairo, on August 11th informed the D.M.S. for the Force in Egypt that 1,400 cases were being treated; "they should not," he said, "have more than 1,000 or 1,250 at the outside." Hurried attempts at further expansion were made, but within forty-eight hours the vicious circle had again commenced; rapid transfer from No. 1 General Hospital to the auxiliaries; the overcrowding of these; premature transfer to Helouan convalescent home,[5] and thence (or direct from hospital) to the "so-called convalescent dépôt" at Zeitoun; from Zeitoun many were subsequently returned to hospital. The rush, however, was brief, being relieved by the "by-wash" direct to England, and by the middle of the month the navy was able to release fine vessels like the troopships *Themistocles* and *Euripides*, by which alone 1,766 invalids and convalescents were cleared to Australia in August. During this month a total of 4,829 casualties passed through No. 1 General Hospital and the "auxiliary convalescent hospitals," 1,278 through No. 2.

Situation relieved

The precarious equilibrium of beds in Egypt and Malta, obtained in August by direct evacuation to England from Mudros, was at the end of September again upset by the effect of the sick wave. Passage of sick—such as cases of enteric and dysentery—through the hospital system was slow; severely sick could be sent to England only in hospital ships. In spite of increased clearance overseas, the ratio of output to intake again diminished. On September 26th the P.D.M.S. reported only 3,880 beds available in Egypt. At the beginning of October Egypt was again "full." The circumstances of this second crisis have already been described. Again the Atlantic liners came to the rescue and the situation was relieved.

September—wave of sick

The campaign was now entering on its final stage, which was to culminate in the evacuation of Gallipoli and close the first act in the war drama of the A.I.F. Medical activities

[5] 800 were passed on from Luna Park within four days of admission.

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in Egypt from this time centred on the treatment of sick from the Dardanelles, and on closer and more exact organisation at the base for the disposal of convalescents and recovered casualties; the latter reflected in the East important developments taking place in the West. Alexandria became a centre of scientific activities, as the headquarters of the clinical and scientific specialists working under the P.D.M.S. and of the Medical Advisory Committee and Entomological Commission. "Central" laboratories were established at Alexandria and Cairo and their work was supplemented by research in the hospitals.[6] Most of the cultural work for the Australian hospitals was done at the central laboratory, but in the laboratory of No. 1 Australian General Hospital, under adverse conditions, very useful work was done in routine investigations.

Affairs in the A.A.M.C.

For the Australian Army Medical Corps the last quarter of 1915 was a cardinal period. Developments were in no small degree influenced by the affairs of No. 1 General Hospital, and some details of the reorganisation of this hospital must be given. On August 10th the system built round this unit was broken up and the three auxiliary convalescent dépôts, the two convalescent homes (Helouan and Ras-el-tin), and the venereal hospital at Abbassia became separate commands with provisional establishment, administered, under the D.M.S. for the Force in Egypt, by the "A.D.M.S., Australian Force." Under the control of the latter was also placed the base dépôt of medical stores. These arrangements were notified to the Defence Department by the Australian Intermediate Base Dépôt. Two "commissioners" sent from Australia by the Australian Branch of the British Red Cross Society arrived, and on August 11th took over the Red Cross dépôt and the management of all Red Cross affairs. No. 1 General Hospital became again a normal medical unit; its occupied beds, shown as 1,900 on the 9th,

No. 1 A.G.H. reorganised

[6] At No. 17 British General Hospital, for example, R.A.M.C. officers (British and Australian) were associated in important researches on dysentery. See *The Lancet* of 17 August, 1918—"On the differential diagnosis of the dysenteries: the diagnostic value of the cell-exudate in the stools of acute amœbic and bacillary dysentery," by J. G. Willmore (Captain, R.A.M.C., T.C.) and Cyril H. Shearman (Captain, R.A.M.C., T.C.).

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dropped to 340 on the 10th, and its normal bed state from 2,900 to 1,040; its staff, however, dropped only from 59 medical officers, 224 nurses, and 432 other ranks to 42 medical officers, 216 nurses, and 416 other ranks.[7] Casualties were still for convenience distributed from it to the auxiliaries, though they did not now pass through its books; and for a time the motor transport and reinforcement pool remained under its control. The rearrangement was accompanied by drastic internal changes, which, though incidental only to the steady round of work of the officers, nurses, and other ranks of the A.A.M.C., loomed so serious in Australia at the time, and left so bitter an aftermath of discord, that some mention must be made of them.

Internal reforms follow inquiry

The "inquiry" by the Army Council concerning certain features of the administration of No. 1 General Hospital[8] resulted in a cable from the High Commissioner to the Australian Government on August 4th—confirmed on the 11th by the Secretary of State—that, as a result of inquiry, the "G.O.C. Egypt recommends and the Army Council endorses" that the commanding officer of No. 1 Australian General Hospital and the Matron Inspectress "should be recalled to Australia," and that the registrar should "devote himself entirely to Red Cross work." These recommendations the Minister for Defence, on the advice of the acting D.G.M.S., accepted.[9] On August 21st the commanding officer of No. 1 General Hospital was relieved and, with the Matron Inspectress, was recalled to Australia. A new registrar was appointed, and on August 23rd the position of "A.D.M.S., Australian Force" was terminated (as it

[7] The authorised (Australian) establishment for a general hospital of 520 beds was 21 officers, 93 nurses, and 143 other ranks; that of No. 1 Australian General Hospital (1,040 beds) on September 1st, 35 officers, 105 nurses, and 246 other ranks.

[8] *See p. 279.*

[9] A request was subsequently made by the Egyptian Command that the decision regarding the registrar should be amended to permit of his retention on the staff of the D.M.S. for the Force in Egypt, who found it "impossible" to administer the Australian service without a special Australian officer. The Defence Department replied that, since such an appointment had been declared unnecessary in connection with Surgeon-General Williams, and since the appointment of "A.D.M.S., Australian Force," had been made without the knowledge or consent of the Defence Department, the decision could not be reconsidered. A formal inquiry was asked for by the registrar and was held by a Board appointed by the War Office. The commanding officer and matron inspectress were exonerated from blame other than would attach to inability to adapt themselves to the circumstances of military service. The work of the registrar was eulogised, and the retention of his services recommended in connection with "Red Cross" work.

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had begun) by a personal letter of the D.M.S. for the Force in Egypt. The registrar himself was permitted to resign from the Australian force and was subsequently given an appointment in the R.A.M.C. The duties of the Australian "S.M.O." were extended. The registrar of No. 2 General Hospital was attached to the staff of the D.M.S. for the Force in Egypt,[10] his duties relating exclusively to the arrangements for invaliding to Australia.

The episode had great publicity and brought to the Australian medical service in Egypt a reputation for indiscipline and incapacity that was not soon lived down. Three able officers were lost to the service, sides were taken, permanent feuds engendered. But it served one useful purpose, by making inevitable the establishment of an effective system of internal control; and it was fortunately the first and only "medical scandal" in which the service was involved.

This reorganisation had been initiated by the P.D.M.S., whose authority, deriving direct from the War Office, had considerable weight, while his viewpoint embraced the whole military organisation in the Levant. At his instigation No. 1 General Hospital ceased in September to act as reinforcement dépôt for the A.A.M.C. Reinforcement officers and nurses were held at the two general hospitals indifferently, their distribution being controlled, under the D.M.S., Egypt, by the Australian "S.M.O.": other ranks, like reinforcements of other arms, were held in the A. & N.Z. Training Dépôt at Zeitoun.

Divided control remains

But the position of the P.D.M.S., unrelated to any local command, precluded any sustained direction by him of the Australian medical service, and in September the effects of the division of control, between Egypt and the M.E.F., reached a climax. In order to meet a demand through Third Echelon for thirty-six officers and 595 other ranks for the front, the "S.M.O." on September 2nd was obliged to draw to the utmost on the "special" reinforcements now arriving and also on those already employed in Egypt. The base units were thus left inadequately staffed. As at the front, it was found that the normal reinforcements of two and a half per

[10] Under the designation "Staff Officer A.I.F. to the D.M.S. Egypt."

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cent per month[11] were insufficient to maintain the established units at a strength adequate for periods of heavy work, and at the same time meet the manifold demands for medical personnel at the base. The policy of expansion by special reinforcements rather than by new units involved the defect that no reinforcements arrived to reinforce the former. On September 4th the D.M.S. for Egypt urgently required no less than thirty officers and 600 other ranks, A.A.M.C. Large demands on Third Echelon, M.E.F., for reinforcements to make good the sick wastage of No. 3 Australian General Hospital at Lemnos brought matters to a crisis. The Egyptian Command and the Australian Intermediate Base Dépôt both declined responsibility, and the M.E.F. was instructed to obtain Australian reinforcements direct through the War Office—a course for which no precedent existed and for which no administrative machinery had been created. The impasse—for it was nothing less—was the inevitable result of the dual control of the Australian medical service by the Egyptian Command and the M.E.F. without co-ordination through an Australian Director.

Colonel Fetherston's visit

It was in these circumstances that, on September 21st, the acting D.G.M.S., Australia, arrived in Egypt. He reported to the D.M.S. for the Force in Egypt as an "inspector"; all his official correspondence went first to the G.O.C., Egypt. He found the administrative situation very different from that which he had expected. "I had presumed," he reported to the Minister on his return, "that, having said there was no position for the Australian D.M.S., . . . the Imperial Authorities would control and direct our services on the Lines of Communication: but in practice this was not done." At the request of the D.M.S. for the Force in Egypt he cabled at once for thirty Australian medical officers and 300 other ranks, and inspected the Australian medical units in Egypt.

Among matters to which he gave attention were the staffing of the auxiliaries, for which he drew up establishments based on accommodation. Large official expenditure was authorised, and excessive reliance on Red Cross funds

[11] Equivalent to six per month for each general hospital.

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now ceased. His request for an Australian hutted hospital at Alexandria was approved, "provided sufficient timber can be obtained," and this was at once ordered by him from Australia.[12] After a tour of the Dardanelles the acting D.G.M.S. left on October 24th for England.

The sick wave: treatment

The disposal in Egypt of the various disease-types contained in the sick wave from Gallipoli presented difficult problems, into which, however, it is not possible fully to enter. As with wounded, it was, generally speaking, the least serious cases that went to Cairo, but towards the end of the year cases of typhoid and dysentery were sent there in considerable numbers and were treated for a time, chiefly by No. 2 General Hospital. The results obtained were, as generally in Egypt, exceedingly good.[13] In October "Choubra" was made the special hospital for enteric in the Cairo area. The staff of this important unit was a truly Imperial one, the commanding officer and nurses being Australian, and the officers drawn from all parts of the British Empire.

A concentration camp for convalescent enteric cases was formed at Port Said. In connection with these infections, a serious problem for Australia was entailed by a decision of the Medical Advisory Committee, and an order of the D.M.S. for the Force in Egypt based thereon, that after convalescence all enterics should be sent to their home bases for three months before return to duty. After unavailing protest, however, the acting D.G.M.S., Australia, accepted the direction of the committee. This order illustrates an interesting hiatus in the anti-typhoid policy of the British medical service, when paratyphoid was shaking the faith of the profession in prophylactic inoculation and "T.A.B." inoculation had not yet arrived to restore it.

During the last four months of the year the Australian medical units in Egypt became more and more occupied in

[12] It arrived in April, 1916, when the centre of medical activity had shifted from Alexandria and the opportunity had passed.

[13] At No. 2 A.G.H. the senior physician formed the opinion that, until the end of the year, the cases of flux were due to dietetic factors and not to infection. This view was based on the clinical condition on arrival and on laboratory findings, but, though supported in some degree by the Medical Advisory Committee, it must be considered incorrect in the light—to mention only one source of illumination—of subsequent research (which will be dealt with in *Vol. II*) in connection with the recovery of bacilli from dysenteric stools.

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the treatment of local sick, the two general hospitals acting as camp hospitals to an increasing number of Australian troops in Egypt. Their surgical staffs were engaged largely in treating hernia, varicocele, and other deformities; but the disposal of convalescents—and invalids—transferred to them from British units in Egypt became an increasingly important part of their work. In particular they dealt with Australians discharged convalescent or boarded for transfer overseas from the hospitals at Alexandria, few such cases being now retained in the Australian section of the M.E.F. base at Mustapha. To serve the requirements of these, and of the lightly wounded and sick from the front sent to Cairo direct, the extensive convalescent system that had been built up was further developed. In the Australian auxiliary hospitals ministration was gradually improved, and treatment was carried out on more exact and purposeful lines than had hitherto been possible, by co-operation with the medical boards in the twofold function now attaching to these bodies, namely, the more prompt return of "fit" men to duty and the systematic invaliding or transfer "for change" to Australia—whither the tide of evacuation from Egypt was now setting—of all "unfits."

Convalescents

On August 11th the D.M.S. for the Force in Egypt issued, as "instructions" to all medical units in Egypt, the order of G.H.Q., Mediterranean Expeditionary Force, dated 25th July,[14] noting as "most important" that men under classes "A" (fit to rejoin their units) and "B" (convalescent, fit for service on lines of communication only) should be discharged from hospital regularly.[15] Decision as to these two classes rested normally with the medical officer concerned, though a medical board—at first the P.M.O. for Cairo himself, but subsequently a special body presided over by him—became more and more engaged in further differentiating and subdividing both the men marked as provisionally "fit" and those designated as temporarily "unfit." Doubtful cases, and all those which the medical officer in

M.E.F. classification applied in Egypt

[14] *See pp. 227 and 385.*

[15] The instruction included convalescent institutions. For general hospitals 5 per cent was subsequently laid down as the normal daily clearance.

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charge considered suitable for inclusion in category "C" (invalids for home), were, as previously, reserved for decision by a hospital medical board, whose findings were, however, subject to "review." The provision made in the M.E.F. order, that "A" and "B" classes should be sent to Mudros, because of its "salubrious climate," was at no time carried out in the A. & N.Z. Training Dépôt. Instead, its "base details" section was divided into "A," "B," and "C" detail camps, which represented, broadly, the medical categories. From "A" details the medical officer selected those whom he considered fit to be passed to the training battalions (whence were taken drafts to fill the demands from M.E.F. made by Third Echelon). "A" details supplied all personnel for camp duties—their only form of "hardening." "B" details were subject to no duties, and were, as far as possible, inspected daily by the camp medical officer, who to the best of his ability selected from his parade those men whom he considered fit for transfer to "A" details and those who should be returned to hospital. "C" details held men who had been classified by medical boards for return to Australia as totally and permanently "unfit," or for "change" and convalescence, but who were not in immediate need of hospital ministrations.

Disposal by invaliding—the "three months" rule

The standards of disability, clinical and physical, that directed the decisions of medical boards in respect of "invaliding" were from July onwards governed by the policy, laid down by the D.M.S. for the Force in Egypt, of returning to Australia for convalescence or discharge all sick and wounded men "unlikely to be fit within three months." The clear-cut issue thus presented did much to dispel the confusion that had arisen in connection with this problem. But individual decisions were still hampered by uncertainty as to the effect of the various clinical factors, medical and surgical,[16] upon the soldier's

[16] This uncertainty, originating in the vital, and therefore variable, factor of human reaction to injury, was never entirely resolved. Till the end of the war board findings were subject to idiosyncrasies in outlook and temperament on the part of the boarding officer, and to military exigency. But a science of boarding (so to speak) was in time built up: and it is of interest here to note that useful contributions thereto within the A.I.F. were based on observations made during this experimental period.

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fitness for service. To quicken the procedure and give authority to the still very discordant findings of the hospital boards as to suitability for "invaliding,"—that is to say, under the new system, classification into category "C"—the P.M.O. for Cairo (Colonel Manifold) was appointed president of a special "reviewing board," with the Australian senior surgeon (Colonel Ryan) and later the senior physician (Colonel Maudsley) as members. This "flying board," as it came to be called, visited the various hospitals and convalescent homes, reviewed findings for invaliding, and saw all doubtful cases.

The initiation of the "three months" policy was related to increased facilities for transporting invalids to Australia. From the end of July fine vessels regularly sailed thither for reinforcements and were available for invaliding; consequently procedure for the concentration and embarkation of suitable cases, and for the preparation of transports and the provision of medical staffs, became of increased moment.

Transport to Australia

The Egyptian port of arrival and departure for Australians was Suez. In view of the increase of Australian traffic in which the medical service was concerned, the Australian Embarkation Medical Officer ("E.M.O.") was in August stationed at that port. This officer, working in conjunction with the Australian Military Embarkation Officer, and having the resources of the Indian Medical Service[17] generously placed at his disposal, built up an effective system for the selection of suitable transports and their preparation for invalids, co-ordinated with the concentration at Suez of invalids whom the vessels could most fitly accommodate. At the Cairo end the arrangements were carried out by the "Staff Officer, A.I.F." to General Ford, in conjunction with the "invaliding branch" of the Australian Intermediate Base Dépôt and the quartermaster-general's branch of the Egyptian command. At the end of the year unfits ("C" class), who had hitherto been distributed among all medical units and in the details camp of the training dépôt, were concentrated at No. 2 Auxiliary ("Atelier"). Medical and Red Cross stores for the transports were standardised, a

[17] Suez was an important post in the movement of Indian troops.

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fixed provision being made for every hundred invalids. A special reserve of medical staff was maintained in the hospitals.[18] Delay of transports in the Egyptian ports was reduced to a matter of some two to four days. In October the Australian hospital ships made their first trip to Australia, and were thereafter to ply regularly from Suez, taking (as reported by the acting D.G.M.S., Australia) "cases that require that little extra care, which can only be supplied on a fully equipped hospital ship and is wanting on a hospital transport." During the last two months of the year invaliding to Australia from Egypt fell off greatly. Though this was in some measure because of the diversion to England of the stream of casualties from the front, it also reflected an administrative inertia in connection with Australian affairs in Egypt—an inertia partly due to the uncertainties of the general situation in the Levant, but chiefly traceable to the absence of effective internal control of the Australian force overseas.

Disposal by return to duty

From the military point of view the medical questions associated with invaliding were of much less importance than that of "return to duty," wherein medical and combatant responsibility met in the base details camp. The instruction of the D.M.S., Egypt, to close this "so-called convalescent dépôt"[19] was never carried out. The details camp was in fact a necessary intermediary between the hospitals and the training battalions. The congestion and overflow in August almost overwhelmed the small medical staff of the A. & N.Z. Training Dépôt, and an attempt was made by the P.M.O., Cairo, to improve the position by helping in the reclassification of "B" details. In September the "flying board" extended its activities to the training dépôt. But the occasional intervention of a medical board was of little use in the absence of systematic training and reboarding. Decisions were sometimes influenced as much by the need for clearance as by the condition of the convalescent, and the result, as put by a medical officer of the dépôt, was that

[18] "On a wire from the Embarkation Medical Officer giving the 'cot' and 'hammock' space available, it only required a message to the various hospitals for so many men of each type and an order to the Australian Base Dépôt of Medical Stores and the Red Cross, to get a train load ready at short notice." (From a note by the Staff Officer, A.I.F.)

[19] *See p. 269.*

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"men made 'fit' by word of mouth would be sent to the training battalions and promptly returned as quite unfit for full training." The crux lay in the difficulty of deciding in what category the partly recovered man should be placed and for what duties he was fit. Experience had not been crystallised in any definite instructions.

Disposal of "B" class men

With the problems of invaliding to Australia and of return to the front was closely associated the question of retention overseas—for "B" class duty at the base and on the Lines of Communication—of men unsuited for classification as "A" or "C." General Birdwood, as G.O.C., A.I.F., suggested, on the recommendation of Colonel Howse, the D.D.M.S., Anzac Corps, that it would be better to return to Australia and New Zealand all men permanently unfit for the front. On the matter being referred by General Maxwell to the officer-in-command of the Australian Intermediate Base Dépôt, it was reported by the latter that much of the work at the base could be done by selected "B" class men, of whom over 1,000 were then employed in Egypt. The acting D.G.M.S., Australia, reported to his government on the situation as he found it both in England and in Egypt, and advised that, on account of the high rate of pay of the Australian soldier, men able to do only a small amount of work should be invalided home. Here for the time the matter rested.[20]

The occurrence of "unfit" men in reinforcements arriving from Australia for some time received little attention in Egypt, and many recruits unfit for service were either passed on to Gallipoli or transferred to the hospitals for reparative treatment—often unavailing—or for invaliding. A voyage report, brought to the notice of the D.M.S. for the Force in Egypt by the "Staff Officer, A.I.F." gave evidence of serious defects in the medical examination of recruits in Australia, and the medical boards engaged in invaliding discovered considerable numbers of unfit men among the troops arriving. Upon this being reported by the D.M.S.,

[20] In his report to the Minister for Defence, Colonel Fetherston noted that the greatest confusion existed on the subject. "I was unable (he said) to find any definite rule regarding the stages of physical health for placing men in 'B' Class or instructions to medical officers. Once in Class 'B,' a man usually remained so."

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Egypt, to the Australian Defence Department, action (to be described elsewhere) was taken to advance a stage further the solution of this thorny problem.[21]

"Hardening" of "A" not yet developed

In connection with "A" class, though the principle of further discrimination was embodied in the new organisation of the details camp, its value was in great measure neutralised by failure to realise that the fitting of the "A" class man for the front was a combined medical and military problem of a most difficult kind. A wide region of semi-fitness existed, as yet almost unexplored by the medical service. The medical staff of the dépôt was wholly inadequate for any organised assistance in the matter. The personnel under the A.D.M.S. for the training dépôt—namely, three medical officers and six orderlies—was sufficient only for sick parades and sanitation. The training battalions had grown from a few thousand to a great camp (8,000 in September). Requests by the A.D.M.S. of the dépôt for an establishment of personnel and effective organisation was "held up month after month," mainly through the confusion resulting from the fact that the Australian and New Zealand forces were under two independent commands (M.E.F. and Egypt), to some extent outside both, and without any defined system of internal control.[22]

Local sickness

It was chiefly in connection with the training dépôt and the adjacent camps that the prevention of transmissible disease in the Australian force in Egypt was concerned. In the early camps in Egypt there had been a fulminant outbreak of inspiratory infections, of which the causative agents had accompanied the 1st Division from Australia. Though this was not duplicated by any widespread epidemic of serious gastro-intestinal infection originating at Gallipoli, the majority of men stationed in Egypt, and a large proportion of troops passing through, suffered in the summer from flux, which was certainly infective and commonly due to recognised dysenteric organisms: in neglected camps, as at Mex, the

[21] *See p. 524.*

[22] At the end of the year, when the camp held from 30,000 to 40,000 men, the medical staff consisted of three medical officers, four N.C.O's with unpaid acting rank, and six orderlies.

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actual incidence was as great as on the Peninsula. A considerable number of cases of enteric occurred among Australian reinforcements. A somewhat serious outbreak of typhoid fever among the New Zealand troops was found to be associated with imperfect inoculation, and the possibility of such an occurrence illustrates the imperfection of the sanitary standard attained in Egypt during this period. At Zeitoun a pan system with incineration, carried out by a native contractor, suffered from the same defects as have been described in connection with the Mena camp. In particular the measures against infection of food by flies were wholly inadequate: there was, it would seem, at first in Egypt an attitude little less fatalistic and helpless than at Gallipoli. The arrival of the Medical Advisory Committee and Entomological Commission initiated a more robust attitude on the part of the military authorities in Egypt, as elsewhere in the Levant, towards the scientific control of infection and of flies in the military camps.[23] In September an Australian medical officer was appointed "specialist sanitary officer" to the Zeitoun camp system. On his initiative the use of heavy petroleum oils in effective quantity became general, but only towards the end of the year were anti-fly measures on systematic lines taken seriously in hand. At Zeitoun, cases of disease from Gallipoli were not a source of infection in the camps, but it was apparently otherwise at Alexandria, where the Medical Advisory Committee found that a large proportion of the enteric and dysenteric infection derived from the Dardanelles. On the other hand, epidemic camp jaundice was exceedingly prevalent in camps at Alexandria before it occurred at the Dardanelles.[24].

Defective sanitation

In addition to intestinal infections there appeared, from time to time during the summer, outbreaks of inspiratory infections whose origin is of special interest. Enquiry, made through the case-records, as to the source of infection in the cases of infectious diseases admitted to Australian hospitals in Cairo

Sources of infection

[23] The work of these committees was embodied in an important series of reports.

[24] Alexandria—as was pointed out at a meeting of the Medical Society formed there under the presidency of Sir Ronald Ross—was an endemic centre for various types, Weil's Disease, it would appear, being considered as one among several distinct diseases.

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from overseas reveals an intimate, but an indirect, relation between the latter and the various diseases prevalent, or from time to time occurring as local outbreaks, in the camps in Egypt. From Suez, disembarked from the transports, came measles, mumps, cerebro-spinal fever, and influenza, reflecting with extraordinary accuracy camp epidemics in Australia. From the M.E.F., *viâ* Alexandria, came gastro-intestinal cases (enteric and dysentery) and jaundice. From the training dépôts and camps came cases of each type of infection. The inspiratory infections admitted from camps were from sudden local outbreaks, and marked the arrival of transports which from time to time sent to Zeitoun their quota of incubating cases among the reinforcements. Meanwhile the gastro-intestinal and jaundice cases sent to hospital from the camps had acquired their infection from the same fountains of disease, endemic in Egypt, as had in the first instance supplied the front with the *materies morbi* that ran riot in the congenial circumstances of Gallipoli.

Inspiratory infections from Australia

It was recognised by the "A.D.M.S., Australian Force," that the chief source of the inspiratory outbreaks was the inadequate provision made in Australia against the inclusion of incubating cases among the embarking troops. This was pointed out to the Defence Department by cable, but during 1915 no results appear, nor, on the other hand, were steps taken at the Egyptian end. In consequence, inspiratory infections became so rampant that in October No. 4 Auxiliary was opened for this special type of infection and by the end of the year had taken 2,331 cases, including 1,439 mumps and 228 measles. Towards the end of the year pneumonia became somewhat prevalent but never assumed the epidemic features of the preceding winter.

Venereal disease

Next to the gastro-intestinal and inspiratory infections, venereal disease constituted the foremost, and in many respects the most important, cause of disability from sickness. Preventive measures were practically confined to moral suasion and the provision of counter-attractions. The circumstances under which these diseases had hitherto been treated were peculiarly unhappy, the staff inadequate, the conditions deplorable,

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methods and equipment rudimentary. Local action was paralysed by the regulation that all cases must be sent to Australia. Acting on instructions from the Defence Department, the acting D.G.M.S., while in Egypt, arranged that no cases should be returned to Australia unless they were incurable or very intractable; and he cabled for specialists to take in hand their effective treatment.

Clinical work

It is impossible to give any detailed account of special aspects of the work done in the Australian hospitals during this strenuous and difficult phase of their service. It is perhaps sufficient to record the impression, candidly and dispassionately arrived at, that, while the severe comments made by the P.D.M.S.[25] may have been justified by the conditions under which the medical work was done, and in some measure by the inexperience of Australian medical officers at this time in the requirements of military hospitals, in all essential ministrations the Australian soldier received a fair deal in the Australian hospitals. The death rate in them was extraordinarily small, even when the special character of the cases is considered.[26] Of discomfort, it is true, there was much, but the medical service in all its ranks did not spare itself in the endeavour to ameliorate the conditions. The outstanding feature of the work of the Australian service was that it had largely to deal with light cases and convalescents—sometimes in rushes which, though far less than those experienced in France, taxed its resources to the utmost. It is this fact that determined the character of its development. That development, it cannot be questioned, was entirely suited to the needs of the Landing and to the extraordinary situation in which the service then found itself, when it was called upon to provide at briefest notice accommodation for which neither equipment nor funds had been provided, either by the Defence Department or by the War Office.

[25] Surgeon-General Babtie, in a report to the D.G.A.M.S., after his first inspection in June.

[26] Of 12,622 patients treated in No. 1 Auxiliary up till 31 December, 1915, 6,322 were discharged to duty; 4,975 transferred (875 to other hospitals and 4,100 to convalescent homes); 1,324 invalided (900 to Australia and 424 to England); and there was one death. 327 operations were performed.

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A few aspects of the clinical work deserve a brief notice, since they contain the presage of problems which subsequently assumed enormous dimensions.

Medical treatment

While the work of the physicians was chiefly concerned with those infectious diseases, characteristic of campaigns, which caused by far the greater amount of temporary disability, certain types of disease not (or not directly) of infective origin became prominent both as to causes of temporary disablement and especially as necessitating much the largest proportion of invaliding from disease.[27] Three of these call for comment as of prime importance, namely, "neuroses," disorders of the heart, and "rheumatic" disease. Concerning the two first, a fine study was made at No. 2 Australian General Hospital, wherein were avoided some of the pitfalls into which the profession fell in dealing with these cases. Thus, "D.A.H." (disordered action of the heart) was recognised as being often a manifestation of the "neuroses" characteristic of war,[28] in which some acute debilitating disease might replace physical or mental "shock" as proximate cause. Nervous "functional" disorders were classified into: (*a*) neuroses involving the motor apparatus and common sensibility, the special senses, and speech; (*b*) neurasthenia (including "trench spine"); (*c*) psychoses (minor psychoses, mental stupor, insanity). It would have been well if more notice had been taken in Australia of the wise and pregnant advice given regarding treatment of abnormalities of behaviour due to war-strain.

Neuroses and Psychoses

> Treatment calls for care and judgment. To gain the confidence of the patient, and place him under tactful nurses, was an essential preliminary to attack with all the physio-therapeutic measures at command. . . . As carriers of psychic contagion they were a source of danger in the ward and were isolated (from each other they received no sympathy). . . . To save resistive cases from acquiring the invalid habit, the shorter their stay in hospital the better. It cannot be too plainly indicated that stringent measures should be formulated for dealing with them on transports, on disembarkation, and prior to discharge. This is a continuous critical period, during which they must be guarded with the utmost tact and circumspection against themselves and their friends and a grateful country.[29]

[27] The relative importance of various diseases as causes of military incapacity and of invaliding is shown in the statistical tables given in *Vol. II.*

[28] Already doomed to clinical obscurantism by the name "shell shock."

[29] From "Remarks on some neuroses and psychoses in War," by A. W. Campbell, Major, A.A.M.C., in the *Medical Journal of Australia*, 15 April, 1916.

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Cases of "rheumatism," apart from the acute infectious disease, accumulated in large numbers, and were no less difficult of exact diagnosis and treatment in Egypt than at the front. As at the front "malingering" was also fallen back upon as a diagnosis, though often unjustly. From the end of May onwards the majority of cases were sent to Helouan and treated by sulphur baths, of which it was recorded that in some cases "good results" were obtained. Many were invalided, and these will be found constituting a considerable portion of all the cases which after the war had to be maintained by pension.

Rheumatism

In both these classes of case there is evident the unfortunate tendency to pass them on, with little discrimination, for "massage" or "electric treatment," with the result that in too many instances they were lost sight of by the medical officer—often for a long period.

After the short rush of August, when a proportion of serious cases of wounds reached even to the auxiliaries, surgery in the Australian hospitals was largely confined to the correction of defects, such as hernia, in newly-arrived reinforcements: to the treatment of the results of sepsis in preparation for invaliding; and to the treatment of minor wounds in preparation for return to duty. Each of the auxiliaries had a small operating theatre, where much minor and some major operative work was performed with very good results. The medical service began to accept a greater responsibility for treating men till really "fit" before being discharged "to duty," and also for preparing them for invaliding. A few enlightened officers recommended schemes for graduated exercises, and exploited the potentialities of massage and electro-therapeutic treatment in the rectification of surgical lesions. In June and July there occurred a marked accumulation, not only of wounded who had passed the stage of active treatment and were awaiting discharge to duty or invaliding, but also of cases, other than wounds, in which condition was unamenable to treatment by drugs, serums, or surgery. This development brought to many medical officers a recognition of the fact that a wide vista of

Surgical treatment

Intractable cases accumulate

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treatment was opening up, not only in the preparation of men for further service, but also in the fulfilment of medical obligations to the man who was crippled by injury or disease and rendered unfit for further use in the military machine, but who looked for reinstatement as a citizen with the remnant of his efficiency preserved to the utmost. The various forms of physical treatment—by manipulation, heat, electricity, and so forth—seemed to offer escape from the impasse caused by the crowds of chronic cases that choked the hospitals, or of the temporarily unfit that passed through hospitals, auxiliaries, convalescent and training dépôts—and often back again in vicious circle. Sea-bathing at Ras-el-Tin gave outlet for some, the medicinal baths at Helouan for others; but there was a general demand for "massage" and other forms of physical treatment for which effective provision had not been made.

Massage

Like dentistry, massage was not at first recognised officially in the Australian service, but nurses were enlisted who had "had training in massage," and who, it was expected, would "train orderlies" to carry out this treatment, till all requirements would be adequately met. Though this idea did not materialise, some massage work was done by nurses, and enthusiastic masseurs worked in the hospitals and were given some form of recognition. By the middle of July the accumulation of cases in Helouan and the auxiliaries made it necessary to "do something" and "massage" seemed a refuge from impotence. The circumstances of the A.A.M.C. in Egypt were ill-adapted for scientific consideration and effective action as regards after-treatment and orthopaedic surgery. The British Army in Egypt was employing local masseurs, and in August, authority having been granted by the commandant of the Australian Intermediate Base Dépôt to the "A.D.M.S., Australian Force" for the payment of hired masseurs, a number (mostly Syrians) were engaged. In the meantime, however, matters had moved in Australia. Masseurs with the rank of sergeant were enlisted "additional to establishment" for the hospital staffs and also masseuses, with the status of staff nurse. Authority was given to promote those already working

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unofficially with the force. Electrical and other forms of physiotherapy were exploited, and apparatus was gradually obtained by the enthusiastic exponents who found (as one of them records) "almost more work than we knew how to cope with." Unfortunately the medical officers did not always realise that they were responsible for directing and controlling the manifold activities of this accessory service; often they lacked the necessary knowledge.

Special provision was now made by the acting D.G.M.S., Australia, that masseurs should be part of the personnel accompanying invalids to Australia, so as to ensure continuity of treatment in cases where final operative or other procedures were delayed. Unfortunately the provision thus presaged for this object was but imperfectly fulfilled in Australia.

Dental service

The reiterated complaints from the front of dental unfitness in men sent out in drafts compelled recognition of the responsibility of the medical base in this matter. Until the end of August the only official dental treatment was that given by the six New Zealand officers equipped by the Australian Red Cross, and by dentists who, in the absence of a dental service, had enlisted perforce as combatants or medical orderlies, and who, passing through the base details, were now employed in their proper profession, though by no special authority and without recognition as to rank and status. Yet only the fringe of the work could be touched by these means.

Provision at last

In the meantime, in response to pressure from the dental profession and from the front,[30] matters had been moving, though slowly, towards a more satisfactory attitude on the part of the military authorities in Australia. On August 12th six dental officers (honorary lieutenants), six sergeants, and six other ranks, fully equipped, arrived in Egypt. Four others authorised by Australia were selected from those employed. They were distributed to Egypt, England, and Lemnos by units, each composed of one officer, one N.C.O., and one other rank. "The amount of work to be done was stupendous, and

[30] The request was made by the A.D.M.S., 1st Aust. Division, through the P.D.M.S., and the War Office (*see p. 248*).

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within a week of the arrival of the corps in Egypt all the units were toiling against impossible odds to cope with the more urgent cases." A circular memorandum by the D.M.S. for the Force in Egypt, in response to urgent representations from the front, instructed "all medical officers" that "urgent dental work should be carried out before drafts are sent to the front." Though the need for some representation of the dental profession on the administrative staff was strongly felt, no action could be taken at the time. At the request, however, of the D.M.S., Egypt, on September 16th a dental officer was attached to the Australian Base Dépôt of Medical Stores and took over all dental supplies.

Medical stores

This provisional Dépôt of Medical Stores had, in September, been removed from the control of No. 1 Australian General Hospital and placed by the D.M.S., Egypt, under the direct administration of the Australian "S.M.O." and the A.D.M.S. for the Cairo district, both of whose signatures were necessary in order to obtain supplies. The acting D.G.M.S., Australia, found the unit "run on business lines" by the small staff, although he thought that the policy of an Australian supply dépôt, except for collecting surplus stores from Australia, "might prove an expensive luxury."

Motor ambulances "established"

In the medical rearrangement the motor transport service remained at first attached to No. 1 General Hospital. It was impossible, however, that there should be a continuance of the conditions under which had hitherto worked this heterogeneous collection of vehicles, now amounting to nearly 100, supplied entirely by public generosity and with drivers[21] working under no effective control. A board of inquiry, held on September 8th under the commandant of the Australian Intermediate Base Dépôt, advised that a separate "unit" should be formed under military administration. An establishment was approved by the G.O.C. the Force in Egypt, received provisional effect, and was ultimately ratified in a modified form by Australia. The unit thus passed from

[21] Enlisted under the authority which had been given for one private of the A.A.M.C. for each motor ambulance presented to the Defence Department and despatched. The size of the military "establishment" was thus conditioned by the generosity of the public in presenting vehicles.

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the control of the Medical Corps to that of the Army Service Corps. It is a fact of some interest that civilian initiative had forced this essential service on an out-of-date military system, wherein medical transport was left to chance or to such provision as was afforded by "returning empties."

Voluntary aid —Red Cross

With the appointment of the representative overseas of the Australian branch of the British Red Cross Society (Lieutenant-Colonel Barrett) as "A.D.M.S., Australian Force," the activities of that voluntary body had been much accentuated and widened in scope, though still confined almost entirely to Egypt. During that period the British Red Cross Society and the Australian branch were more closely associated in their work than either before or subsequently, and the expenditure of their respective funds on common interests was large.[32] The British Red Cross took all responsibility for Red Cross work on the lines of communication. In Egypt the affairs of the parent organisation and of the Australian branch were nominally controlled by a joint committee.[33]

Adopts new methods

At the end of June the home executive of the Australian branch decided on a drastic change of method. The administration and executive overseas were henceforth entirely dissociated from the medical service. Two "commissioners" were sent from Australia to Egypt to "superintend the allocation and distribution of goods and to direct other activities promoted by the society."[34] Under the new organisation the storing and distributing of Red Cross goods were carried out on business lines by the commissioners, with whom were soon associated men eminent in the

[32] The following represents some of the chief lines of expenditure not hitherto mentioned:—the Y.M.C.A., £1,000; Nurses Rest Home, £1,050; Montazah Convalescent Hospital, Alexandria, £10,000.

[33] Consisting of British and Australian medical officers and prominent civilian officials, under the presidency of the High Commissioner of Great Britain in Egypt, Sir Henry M'Mahon.

[34] The "A.D.M.S., Australian Force," had in the meantime taken action (*see p. 388*) with a view to meeting the importunate but somewhat vague demands for extension of the activities of the society to the Peninsula, and more legitimate requests by the stationary hospitals on Lemnos for greater assistance than had hitherto been given them. Endeavours to meet these requests were rendered almost nugatory through the lack, in the Australian society, of any organisation of its own overseas. The "voluntary" element was thereby confined to the provision of goods and money for distribution by the "A.D.M.S. for the Australian Force."

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commercial world of Australia. For some time thereafter, the medical service was unrepresented in the directing of these activities.

Australian Comforts Fund

A development of considerable interest to the medical service in connection with its responsibility for humane alleviation was the arrival early in September of a representative of the "Citizens' War Chest Fund." There now ensued the very necessary separation of the legitimate "Red Cross" activities from others—with which they had been confused by many—whose object was the amelioration of the hardships of the fighting men as such, a purpose not included in the work of the voluntary aid societies under the terms of the Geneva Convention. The War Chest and other funds amalgamated with the "Australian Comforts Fund" (formed by Australian citizens in Egypt), and took the name of the latter. At a meeting with the Red Cross Commissioners broad principles for the disposal of gifts were agreed upon—the Comforts Fund to distribute gifts to troops at the front, the Red Cross to look after sick and wounded in medical units.

Expansion in Egypt, autumn 1915

It remains only to epitomise briefly the general developments in Egypt during the last months of 1915 and to display the situation there as the end of the year approached. The "expansion" of August became permanent development. From October onwards, in order to meet the type of casualties and the policy of retention within the Mediterranean, further expansion took the form of increased facilities for convalescence. By the end of the year the resources of Lower Egypt had been used up and the potentialities of Upper Egypt were being exploited. In the words of the P.D.M.S., Egypt was "one great hospital."

The conditions at the end of 1915 presented indeed a remarkable contrast to those into which had entered the troops from the "First Convoy" and the medical units from the hospital ship *Kyarra*. The subjoined tables give some indication of the magnitude of the organisation involved: it is impossible here to convey any adequate idea of the

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DISTRIBUTION OF CASUALTIES ARRIVING IN EGYPT AND DISPOSAL OF INVALIDS, 1915.

Month.	Arrivals at Alexandria.	Distribution of Casualties.								Disposal of Invalids from Egypt.		
		Local.						Overseas.				
		Port Said.	Cairo.	Alexandria.	Suez.	Provincial Hospitals.	Total Egypt.	Redirected to—		England.	Australia.	India.
								England.	Malta.			
April ..	3,988	..	998	2,390	..	..	3,388	..	600	213	172	859
May ..	15,954	270	4,636	7,362	..	..	12,268	1,100	2,586	1,961	287	389
June ..	8,884	150	3,751	4,983	..	..	8,884	..	..	1,760	469	917
July ..	10,037	230	2,769	3,664	316	..	6,979	575	2,483	2,633	1,153	1,331
August ..	22,400	266	10,801	11,168	..	165	22,400	..	..	4,791	1,923	1,836
September ..	11,319	380	4,838	5,944	..	157	11,319	..	..	4,928	1,053	1,676
October ..	11,407	100	4,988	5,848	..	471	11,407	..	..	6,648	1,375	1,141
November ..	8,066	..	3,587	4,116	..	363	8,066	..	..	3,512	228	1,510
December ..	17,122	..	9,888	7,027	..	207	17,122	..	..	5,038	648	2,552
	109,177	1,396	46,256	52,502	316	1,363	101,833	1,675	5,669	31,484	7,308	12,211

NOTE.—Casualties cleared through Lemnos direct to England and Malta are not included in this table. *See p. 376.*

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STATEMENT OF BEDS EQUIPPED.[36]

Date.	British (including Australian and New Zealand).			Indian.			Grand Total.
	Hospital.	Convalescent.	Total.	Hospital.	Convalescent.	Total.	
1915.							
April 1st ..	3,980	..	3,980	1,450	87	1,537	5,517
May 1st ..	9,686	1,030	10,716	1,450	381	1,831	12,547
June 1st ..	11,119	2,154	13,273	1,450	410	1,860	15,133
July 1st ..	11,898	2,733	14,631	1,450	606	2,056	16,687
August 1st ..	14,684	3,556	18,240	1,450	896	2,346	20,586
September 1st	19,142	6,424	25,566	1,450	907	2,357	27,923
October 1st ..	18,308	6,978	25,268	1,450	400	1,850	27,136
November 1st ..	17,277	7,415	24,692	1,556	1,009	2,565	27,257
December 1st ..	18,200	9,305	27,505	1,472	800	2,272	29,777
1916.							
January 1st ..	21,460	11,901	33,361	1,844	800	2,644	36,005

NOTE.—This includes accommodation required for the Garrison of Egypt.

[36] Extracted from the British *Medical History of the War, Vol. III, General, p. 384.*

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EMBARKATIONS FOR AUSTRALIA.

From Egypt, January, 1915–March, 1916.

Month.	Wounded.	Sick.	V.D.	Others.	Total.
1915.					
January ..	..	..	..	..	..
February ..	..	162	32	132	326
March ..	..	265	25	101	391
April ..	..	105	41	26	172
May ..	..	23	246	18	287
June ..	56	265	103	45	469
July ..	467	482	133	71	1,153
August ..	409	722	642	150	1,923
September ..	334	515	128	76	1,053
October ..	419	779	..	177	1,375
November ..	46	128	..	54	228
December ..	70	461	..	117	648
1916.					
January ..	313	1,628	2	212	2,155
February ..	54	476	..	67	597
March ..	40	354	..	338	732
Total ..	2,208	6,365	1,352	1,584	11,509

From England,[35] *October, 1915–March, 1916.*

1915.					
October ..	369	120	..	34	523
November ..	329	189	..	34	552
December ..	153	98	..	20	271
1916.					
January ..	149	132	..	25	306
February ..	..	..	..	..	..
March ..	532	486	2	45	1,065
Total ..	1,532	1,025	2	158	2,717

[35] The preponderance of wounded among the invalids from England is related to the circumstances of the evacuation from the August offensive (*see chapter xv*).

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multiplicity and variety of the medical activities, scientific, administrative, and executive, which they represent. The remarkable development of the M.E.F. base at Alexandria under the two assistant-directors of medical services, may, however, be mentioned, illustrating, as it does, what can be done when men of goodwill and ability co-ordinate their efforts to a common end.[37] In the Australian hospitals, convalescent dépôts, and homes, the beds available by the end of the year amounted to some 7,500, a number which now represented not mere possibility but an effective reality. The A. & N.Z. Training Dépôt and the Australian Overseas Base[38] by then contained approximately 30,000 troops.

Early in December the D.M.S. for the Force in Egypt was instructed to increase his accommodation to the utmost in view of probable requirements towards the end of the month. The increase was indeed needed, though, as will be seen, for a reason very different from that expected. Between December 3rd and 7th eight hospital ships brought no less than 5,200 casualties.

On November 15th Colonel Fetherston, the acting D.G.M.S., Australia, returned to Egypt on the conclusion of his tour, and left for home on December 3rd. During this fortnight in Egypt he had interviews with British medical administration and the D.D.M.S. of the Anzac Corps (Colonel Howse). The important developments which arose in connection with his visit, and which introduced a more happy, though not more strenuous, era for the Australian medical service on the Lines of Communication, coincided (though there was something more than coincidence) with the close of the Dardanelles adventure and the opening of a new chapter in the history of the A.I.F.

[37] The administration by the D.M.S. for Egypt (Surgeon-General—later Sir R.—Ford) of the Australian Army Medical Service has, from time to time in these pages, been the subject of criticism. The opportunity is taken of this general summary to point out that the remarkable developments therein presented were carried out entirely under the direction of that officer, who had the full confidence of the G.O.C. the British Force in Egypt. It is perhaps desirable also, in connection with the executive work—particularly the prevention of disease—to emphasise again the peculiarly difficult nature of the circumstances in Egypt.

[38] At the same time with the formation of the "Levant Base" in Cairo, the Australian Overseas Base was transferred from Mustapha to the camp at Ghezireh, where it was rejoined by its base details camp from Zeitoun. The commandant of the Australian Intermediate Base Dépôt resisted all attempts at absorption by the Levant Base or any other staff. "The dominant feature," he wrote on December 21, "which had influenced me throughout is the conviction, strengthened by experience, that we must within certain limitations manage our own affairs, if the maximum of efficiency is to be obtained."

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CHAPTER XIX

THE A.A.M.C., A.I.F., OBTAINS SELF-GOVERNMENT

THE time had now come when the questions of internal order and control in the A.A.M.C. were to be resolved by the appointment of a new D.M.S., A.I.F. The full powers, which the D.D.M.S., A. & N.Z. Army Corps (Colonel Howse), had for some time been advocating for this post—for which he himself was obviously designate, were opposed by the War Office; but the appointment was subsequeutly made, after anxious and difficult deliberations, on the recommendation of the D.G.M.S. for Australia (Colonel Fetherston), who during his visit to Europe became convinced of the necessity for it.

* * *

The departure of Colonel Howse from Anzac for Egypt to which reference has already been made, was directly connected with the arrival of a critical stage in developments in the interior economy of the Australian army medical service. To whatever form of government it belongs, an army, with its several services and branches, works through a graduated system of command and administrative control, with corresponding grades of rank, commissioned and non-commissioned. Judicious appointment and effective promotion are among the most vital factors in military efficiency.

Powers of the "G.O.C., A.I.F."

Within the A.I.F. the principles of autonomous command and control of interior economy, as laid down in the Order-in-Council defining the "Powers of the G.O.C., A.I.F.," had been obscured, first by that preoccupation of General Bridges in the divisional command[1] which resulted in his ceasing to issue A.I.F. orders, and then by his death. The exigencies of the campaign had given little opportunity for reconstruction.

When General Bridges was wounded, a cable from G.H.Q., M.E.F., to Australia on May 18th requested that "G.O.C. Anzac, General Birdwood" should be authorised to exercise the powers vested in the G.O.C., A.I.F. The Australian Government in reply agreed to the powers being

[1] *See p. 66.*

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delegated to "the G.O.C. Anzac Corps . . . in the absence of the G.O.C., A.I.F." Except for a brief interval in June and July, during which the appointment was held by Major-General J. G. Legge, who had been sent from Australia to succeed General Bridges in command of the 1st Division and the A.I.F., General Birdwood exercised such rather indefinite authority as the "command" of the A.I.F. at this time implied; in respect of the medical service it hardly extended beyond Gallipoli. An Order-in-Council of September 15th specifically confirmed the appointment of General Birdwood as G.O.C., A.I.F.—in virtue of his command of the Anzac Corps. The issue of A.I.F. orders was resumed; the first (on October 5th) dealt with the promotion of officers.

The A.A.M.C., A.I.F.: organisation and control

The situation in respect of maintenance at strength, expansion, posting, and promotion in the Australian medical units at the base and at Lemnos has been described in previous chapters. At the front, except in the 1st Australian Division, it was little less confused than elsewhere. In that division the A.D.M.S., Colonel Howse, was able to maintain a strong grip on the organisation of the service, and, within his own limited sphere of control, he could carry out the policy in which he had been consistent from the beginning of his career in the A.I.F., namely, that of administering the Australian medical service overseas as a corps.

General Birdwood's order of October 5th defined as "units[2] for the purpose of promotion" in the medical service: (*a*) an "Infantry Division"; (*b*) "Lines of Communication and Base." Already in the Australian divisions the order was that, when a medical promotion was to be made, all members of the service in that division should be considered for it, and not merely those in the unit[3] in which the vacancy occurred. It was laid down that promotion to "field" rank would be by selection, subject only to the approval of the G.O.C., A.I.F. Below that rank it would continue to go by seniority. The two Australian divisions thus became autonomous in this

[2] Not to be confused with the ordinary military use of the term.

[3] Promotion of non-commissioned officers, however, both then and through the war, was by units "within authorised establishment," the word "unit" bearing its ordinary military significance.

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domain, and various promotions were made on the authority of the order. Still the "unit" (or field-of-promotion) comprised in the lines of communication and base was without a co-ordinating head. The arrangement bore hardly also on the light horse and the 4th Infantry Brigade, and was in conflict with the ideal of an Australian medical corps, self-contained for promotion in the A.I.F. The consent of Colonel Howse to this local arrangement was induced by a characteristic determination to safeguard the interests of men in the field against others who, though senior, had seen service only at the base: it was prompted also by loyalty to those who served him well. The apparent inconsistency was redeemed by his conviction of its temporary character, his assurance of future reforms resting on his own determination to secure them. The arrangement held until it became merged in the wider policy which was made possible by the reorganisation of the A.I.F. and its medical service under unified command and direction.

The A.A.M.C. and the R.A.M.C.

The adjustment of the "interior economy" of the A.A.M.C. to the requirements of Imperial co-operation was bound up with the larger question of the status of the A.I.F. itself in the British Army; and that again was involved in the great problem of the constitution of the British Commonwealth of nations. By the experiences of common action under the strain of the war the question of the status of the constituent parts of the British Empire was forced to a more precise definition than had hitherto been necessary. Great Britain and the self-governing dominions could no longer escape the restraint—foreign to the British instinct for freedom from constitutional bondage—of some deliberate formula of co-operation. This fact was brought home during this first fluid year by the necessity of fitting the military forces of the dominions into the very exact organisation of the British military system. The problem was solved independently by each dominion, gradually and in ways determined by their history and environment.[4]

[4] For Australia at least, the question of independence in the matter of actual service was not in any way or at any time a part of the issue. Only the matter of "self-government" came under discussion.

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The sequence of events must now be followed whereby the Assistant-Director of Medical Services, 1st Australian Division, secured for the Australian medical service overseas the opportunity of developing individuality and making its contribution to the common cause under conditions that ensured continuity of policy, discipline, and the effective conversion to the service of the A.I.F. of all the resources of the medical and allied professions in Australia while for himself he secured a foothold on the ladder which was to lead to remarkable heights of responsibility and distinction.

The rise of Colonel Howse

From the time of his appointment as A.D.M.S., Colonel Howse had closely interested himself in the question of the part to be taken by the medical service in the military business of maintaining the strength and efficiency of the force in the field. On Gallipoli he became closely associated with the developments of this problem on the military side. At the end of June, "as the senior medical officer with the A.I.F. on Gallipoli," he drew the attention of the G.O.C., 1st Australian Division, and of the G.O.C., A.I.F. (then General Legge), to the mischievous effect produced on the force, and the very great expense entailed upon the Commonwealth, by the retention overseas of men whose physical or mental condition unfitted them for service in the field, and he recommended the appointment of a permanent special board, to include an Australian medical officer with experience at the front. The recommendation was referred to the M.E.F., but for reasons of local policy the matter was "deferred." In August, on his return from Egypt, he instigated further inquiry as to the possibility of obtaining acceptance of an "A.I.F." policy applicable to all officers and men—whether newly recruited or sick or wounded from the front—who were not likely to be fit for field service. The object of this action was "to prevent a big monetary wastage to the Commonwealth." Further—in view of the "lack of co-ordination between the R.A.M.C. and A.A.M.C." (observed by him in Egypt); of the irregular distribution of reinforcements; and of the necessity for prompt decisions by medical boards in order to prevent

Active part in military affairs

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crowding of hospitals, wastage of men at the front, and expenditure of public funds—he recommended the appointment of a "D.M.S., A.I.F. (Egypt, L. of C., and M.E.F.)."[5]

Proposes appointment of D.M.S., A.I.F., for Levant

In forwarding the report, General Walker, the divisional commander, drew attention to the fact that, though Surgeon-General Williams held the "appointment of D.M.S. of the A.I.F.," he was not performing the duties of that office, and he suggested that steps should be taken to "regularise any appointment that he may be holding . . . Colonel Howse to be appointed D.M.S., A.I.F., and to administer the Medical Section of the A.I.F. Intermediate Base." This course was recommended to G.H.Q. by General Birdwood.

With the acute recrudescence at the end of August of the matter of return to duty, the question of the more efficient direction of Australian medical affairs at the base came again into prominence. On September 6th General Birdwood recommended to General Hamilton that Colonel Howse should "be permitted to proceed to Egypt regarding the administration and working of Australian hospitals," especially in connection with the medical boards. The moment was, however, particularly inopportune[6] for approaching the Egyptian Command on the subject either of return to duty from Egypt or of control of the Australian Army Medical Corps there; and General Maxwell cabled sharply that "there is no necessity for this."

On October 17th Colonel Fetherston, the acting D.G.M.S., Australia, arrived at Anzac and there discussed with Colonel Howse the administration of the Australian army medical service overseas. In these appropriate circumstances was born the policy which, when given form and substance by military establishment and national recognition,

D.G.M.S., Australia, arrives and concurs

[5] It is clear from the correspondence and from subsequent events that the limitation to the Levant of the field to be covered by the appointment was due to the prematureness of the proposal in relation to the general administrative situation within the A.I.F. It was also prompted by consideration for the position of Surgeon-General Williams. It is of interest to note that the Canadian Government had recently arranged with the War Office that all Canadian medical services abroad should be under a Canadian D.M.S.

[6] General Maxwell resented certain implications which had been made during the interchange of views which accompanied these proposals. The crisis concerning the A.A.M.C. administration in Egypt was also at its height. The New Zealand force was at this time passing through a similar crisis.

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made possible an Australian medical service, self-contained and self-conscious. Nor was that policy without influence towards determining the method and machinery of Imperial co-operation in the war. Colonel Fetherston had come to Egypt imbued with the idea that the total absorption of the Australian into the British medical service was a necessity, the Defence Department having been led to this position by the action of the Army Council in regard to General Williams. But what he had seen since his arrival led him to accept unreservedly the views of Colonel Howse. He commended —formally to General Birdwood and to the P.D.M.S.—his opinion that "to prevent serious results from disorganisation" an officer must be appointed to act under the P.D.M.S. "as administrative head and adviser on matters concerning the A.A.M.C. in Egypt, the Mediterranean, and England . . . and be given full staff."[7]

To the Defence Department he cabled recommending the appointment of Colonel Howse as "D.M.S., A.I.F." General Birdwood communicated the proposal to the G.O.C., Egypt, and to the War Office. He considered, however, that "to ensure the subordination of this officer to the D.M.S., Egypt, and D.M.S., M.E.F., he should be a D.D.M.S."

Conflict of views with War Office

On arriving in England on November 1st, after his meeting with Colonel Howse, Colonel Fetherston found great confusion in the medical service, due, as he cabled to Defence, to the fact that "there was no senior officer controlling the medical service." To the then Director-General at the War Office, Sir Alfred Keogh, he proposed the appointment of Surgeon-General Williams to control, under the War Office, the Australian medical service in England, with status of D.D.M.S. and a suitable staff. This suggestion was strongly approved by General Keogh, as was also the proposal for an

[7] The report concluded:—"The following are some of the most important matters which urgently require attention:—

1. Promotion and transfers.
2. Medical Boards on Australians.
3. Fixing of establishments.
4. Nursing Service.
5. Dental Service.
6. Supervision over proceedings connected with the return of sick and wounded to Australia and the Front.
7. Supplies."

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Australian medical administrative officer to the A.I.F. in the East. But concerning the proper status of the latter there was an acute difference of opinion—one not fully resolved till late in the war, and not without some "dust and heat" of debate. A divergence of view was not unnatural, since this question involved that of the relations of the dominions to Great Britain and of the heads of the several services to one another. The War Office, in concurrence with the cable from General Birdwood and with a recommendation from the P.D.M.S.—conveyed in a strongly worded despatch dated October 25th—adhered to the view that this new head of the Australian medical service in the East should be a deputy-director, not a director, of medical services, and should be on the staff of the P.D.M.S.

The position of Colonel Fetherston was a difficult and delicate one. Apart from the Imperial aspect of the problem, General Williams, his old chief, was still technically D.G.M.S. for Australia and D.M.S., A.I.F., a strong personality, an experienced administrator, and supported by a high reputation. But it was believed by Colonel Fetherston and reported by him to Defence (without doubt correctly) that the health of the D.M.S. at this time[8] unfitted him for any position more active or responsible than that of a deputy-director in England. On November 10th he cabled to Defence, recommending the appointment of Colonel Howse as D.M.S., A.I.F., and of Surgeon-General Williams as D.D.M.S. for Australians in England, "so that there should be no doubt as to their exact positions." He also wrote to the same effect to the D.G.A.M.S. (Surgeon-General Keogh).

Defence Department also differs

The Defence Department, however, cabled to the War Office a request that General Williams should be appointed D.M.S. for Australian troops in England, recommendation having already been made by cable to the War Office on November 5th that Colonel Howse should be Director of Medical Services "for Australian troops in Egypt and Gallipoli." Colonel Fetherston was thus faced with the position that both the Australian Defence Department and the War Office desired that the officers should be of equal

[8] Surgeon-General Williams died in 1919.

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status, though the status proposed by the former promoted independent control of the service within a defined sphere, while the latter suggested dependence on British direction.

Approval of the two appointments was given by the War Office, in each case as "D.D.M.S."; and, being thus overruled as regards the appointment of a new director of the Australian medical services abroad, and "deferring to the superior knowledge of the Director-General" on the matter of status, Colonel Fetherston cabled Defence accordingly. Surgeon-General Williams, with adequate staff, took up the appointment as D.D.M.S., under the Director-General at the War Office, on November 27th.

Colonel Fetherston appoints provisional D.M.S., A.I.F.

On his arrival in Egypt on November 25th, Colonel Fetherston was met by Colonel Howse. The meeting was a momentous one, its outcome being a cable by Colonel Fetherston to Defence that he was convinced that there must be "one medical head for the A.I.F. who controls the whole of the medical service outside Australia and acts as adviser to the Australian Government." The War Office was cabled in similar terms. General Maxwell and the D.M.S. for Egypt agreed as to the desirability of a "D.M.S., A.I.F." The War Office, however, adhered to its decision as to status and position, though it agreed to the promotion of Colonel Howse to Surgeon-General. The Defence Department accepted its proposals. Colonel Fetherston however, as D.G.M.S., A.M.F., acting on presumed authority to make—subject to confirmation by the Commonwealth Government—necessary changes in the A.A.M.C. overseas, informed the D.M.S. Egypt that he had appointed Colonel Howse "D.M.S., A.I.F." In consultation with Howse he then proceeded to build up an administrative staff. The "Staff Officer, A.A.M.C.," was appointed "A.D.M.S."; the senior physician of No. 1 Australian General Hospital was made "Consulting Physician to the Force." A Principal Matron was also appointed. An establishment was approved for the auxiliary hospitals, but its promulgation and appointments to these hospitals were left to the new director. All the positions were made "acting," pending confirmation by

Administrative staff selected

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the Commonwealth Government. Such confirmation however, the Defence Department hesitated to recommend, and on December 2nd cabled to the Australian Intermediate Base Dépôt that "further action is left over till Colonel Fetherston returns" and desired his return to be expedited. The situation in the Australian Force at the time was, indeed, not ripe for so definite a move towards autonomy. There was as yet no personal "command" of the A.I.F. overseas. As reported by Colonel Fetherston after his return to Australia—

> Every officer[9] with whom I discussed the subject saw great difficulty in finding an exact position (for a D.M.S.,[10] A.I.F.) there being no G.O.C. all Australians. . . . I found the G.O.C's Malta and Egypt did not recognise General Birdwood as G.O.C. *all* Australians in any way, and he had no authority outside the Forces at Gallipoli even after he had been appointed to General Hamilton's place.

On December 3rd Colonel Fetherston embarked for Australia, leaving the arrangements just described for final adjustment and decision by the new D.M.S., A.I.F. But on December 5th, in response to an urgent cable, Colonel Howse returned to the Dardanelles. The reason for his recall was that it had been decided to evacuate Anzac and Suvla. The acting D.D.M.S., Colonel Sutton, who had carried out the arrangements of the preliminary stage, was crippled by a severe attack of jaundice; and Generals Birdwood and Godley desired to have at Anzac in charge of the critical final stage of the Evacuation—in which the medical service was cast for a highly important rôle—a medical officer whose organising ability and resource had been proved.

[9] That is, presumably, every officer outside the A.I.F.
[10] *See Glossary, D.G.M.S.*

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CHAPTER XX

THE EVACUATION OF GALLIPOLI

THE ultimate result of the failure of the August offensive was the decision to abandon the Peninsula, and the evacuation of Anzac and Helles was carried out at the beginning of winter. A few weeks before this operation an immense flow of casualties was caused by a sudden blizzard, which, however, chiefly affected the troops at Suvla. Emergency arrangements were next made to receive the heavy casualties expected from the Evacuation, and medical personnel was detailed to stay behind and attend those of the wounded who might be left in the hands of the Turks; but these emergencies did not arise, the operation being carried through practically without a casualty.

* * *

The withdrawal of the British force from Gallipoli is one of those events of the Great War which may be expected to stand out arrestingly when Time has cast oblivion over much of the action that held the stage of the world during these tremendous years. By the brilliance of its success as a military achievement it relieves the sombre history of the campaign; by its unexpected freedom from casualties it helped to mitigate the grief and resentment at the lives lost, the maimings and toils endured, and the resources expended, all for so small an apparent gain. In the preparation for this movement the medical service was as prominent as it was happily inconspicuous in the unexpected *dénouement*.

Reorganisation in the Levant

With the decision of Lord Kitchener, made on November 22nd, to recommend to the British Government the evacuation of Gallipoli, action moves rapidly to the intense moment of the climax. On November 19th, in view of the vastness and scattered nature of the operations in the East, General Monro was placed in command of all the British forces in the Mediterranean east of Malta, except those in Egypt. The M.E.F. was reorganised to consist of a "Dardanelles Army" and a "Salonica Army." The former was placed under General Birdwood, with headquarters at Imbros and with a

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D.D.M.S. in medical control of the Peninsula. The command of the A. & N.Z. Army Corps was taken over by General Godley, and the position of D.D.M.S. to the corps was filled, in the absence of Colonel Howse in Egypt, by Lieutenant-Colonel A. Sutton, A.A.M.C. General Monro, with Surgeon-General Bedford as D.M.S., M.E.F., made his headquarters at Lemnos in the *Aragon,* which thus became the centre of control of the widely scattered operations in the Levant. A central base, with headquarters at Alexandria, already organised under the War Office to direct the distribution of supplies for both Salonica and the Dardanelles, became the "Levant Base," an anomalous creation, born of the unparalleled complexity of the military situation, and designed for the purpose of co-ordinating the administrative services, lines of communication, maintenance and records of the scattered and overlapping commands, existing and prospective, that held the now crowded stage of the Eastern theatre of war. The responsibilities of the Principal Hospital Transport Officer, and the vague authority of the Principal Director of Medical Services (now attached to the Levant Base), had already been extended to include the force at Salonica.

The medical situation

Even before the conference on November 22nd, which decided upon evacuation, a military plan had been drafted.[1] Immediately after that conference another meeting was held at which the administrative officers and heads of departments, naval and military, discussed the working of the scheme in detail. The P.D.M.S., who was present, arranged to take steps to ensure that 12,000 vacant beds would always be available at the bases. In accordance with the new policy of retaining casualties in the Mediterranean, three new double-hospitals had been allotted to the Levant, one of which was being established on Lemnos, where there was thus provided a total accommodation for 10,000, of which 4,000 beds were now held as "reserve against emergency." The situation as regards hospital ships was fairly in hand: large accommodation in

1 On the military side the duty of drawing up the general plan for the Evacuation and of carrying out the general arrangements for its execution fell to the staff of the M.E.F. in conjunction with the navy: the detailed schemes fell to the staffs of the army corps on shore: the scheme for Anzac (which formulated the principles ultimately accepted for the whole force) was drawn up by Brigadier-General C. B. B. White, A.I.F.

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this respect was due to arrive shortly. The P.H.T.O., to whose fearlessness, impartiality, and energy the satisfactory situation seems to have been in great part due, was not destined to play a part in the final scene, since, as already stated, the reorganisation of the M.E.F. included the abolition of his post. Sir James Porter had taken up his duties at "zero" hour of a tremendous crisis; in similar circumstances he was removed. He left for England on November 30th, his duties being taken over by the D.D.M.S., Lines of Communication, and later by the P.D.M.S.

Pending confirmation by the British and French Governments, complete general and detailed schemes were drawn up.

Plan for the Evacuation—preliminary stage

The strategic plan for the retreat provided for three stages. In the first two the force on the Peninsula would be reduced in men and material to the minimum required for holding the line in case of attack. In the last stage this final garrison and all animals and materiel of war (or as much as possible) would be removed with the utmost speed. The first stage, which consisted of general preparation and certain preliminary movements of troops, was put in train at once. Secrecy was the fundamental feature of the scheme, and in the preliminary stage this was provided for by making the administrative arrangements and the movement of troops ostensibly part of a plan for reducing the troops on the Peninsula to a minimum for the winter. It was natural—and was accepted by all troops—that the sick and even the partly unfit should be withdrawn; and there was much talk of "rest camps" on Imbros. On November 26th, for example, the acting D.D.M.S., Anzac Corps, was asked in a confidential memorandum from the D.M.S., M.E.F., whether "in view of the deterioration of equipment and of stores, etc., during the winter months owing to exposure to wet . . . you consider it will be possible to dispense with any of the field ambulances now with the Army Corps." In response Colonel Sutton named certain medical units of the 54th Division—which was the first formation to move.

The decision of the British Cabinet was still in abeyance—though considerable movement of troops and other preparations were in progress—when there occurred two events of

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most serious omen for a continued campaign. As part of the detailed plan to prepare the enemy for the cessation of activity, the troops at Anzac during these days had relinquished all offensive action. On November 29th, after this "silent battle," an enemy bombardment with heavy artillery, far more severe than any previously experienced on Gallipoli, was poured on the Lone Pine position. Casualties were heavy, many men being buried by the falling in of the deep trenches. Two Australian medical officers were killed.[2]

Ammunition from Germany

Though winter had begun, the break-up of the season and the onset of gales were not normally due till January. Occasional storms from the south-east had caused considerable damage on the Beach during October. With these occasional exceptions, weather had not interfered to any appreciable extent with evacuation and the landing of stores, or with the comfort of the troops. But on November 27th it rained heavily; at Suvla the trenches were flooded; a number of men, both British and Turks, were drowned; all troops were soaked through. On the 28th the wind changed to the north; it snowed, and then for two days froze hard. The result must be counted among the most tragic experiences of the British Army in the war. To quote General Babtie, it was "an unforeseen natural phenomenon with casualties worse than a battle." At Anzac the soldiers, housed in deep trenches on the ridge, suffered great inconvenience, but casualties from frost-bite and exposure numbered only 414, mostly in the 54th Division, which was caught by the blizzard when on the move. But in the Suvla valley the sufferings were terrible. Over 200 men died in the open trenches from exposure, literally frozen to death. Between November 30th and December 8th, of 15,791 casualties evacuated, some 12,000 were due to the weather. The harbour at Kephalos was practically destroyed, and for three days evacuation was impossible. Moreover the departure of the P.H.T.O. on November 30th had left the D.D.M.S., Lines of Communication, to make at "24 hours notice" (as he records in his

The Blizzard

[2] Major F. M. Johnson (Divisional Sanitary Officer, 2nd Division) and Captain H. F. Green.

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62. THE 4TH FIELD AMBULANCE DRESSING STATION AT WALDEN GROVE

Taken by Sgt. H. V. Woods, 4th Fld. Amb.
Aust. War Memorial Collection No. C701.

63. THE 4TH FIELD AMBULANCE REST STATION IN HOTCHKISS GULLY, AFTER A FALL OF SNOW, NOVEMBER 1915

Taken by Sgt. H. V. Woods, 4th Fld Amb.
Aust. War Memorial Collection No. C680.

To face p. 440.

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64. No. 3 Australian General Hospital, West Mudros

Taken by L/Cpl. A. W. Savage, No. 3 A.G.H.
Aust. War Memorial Collection No. H13990.

65–66. The bacteriological laboratory at No. 3 Australian General Hospital

Left: Exterior view (s.s. *Aquitania* in distance). *Right:* Interior view, showing the working bench. The microscope is covered on account of the prevailing dust.

Lent by Sister F. E. Williams, A.A.N.S.
Aust. War Memorial Collection Nos. H13991 and H13992.

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war-diary) the necessary provision for meeting the appalling situation. The hospital ships available ferried the casualties to Mudros. Ashore at Suvla and Anzac the disorganisation was great. In particular, the water-mains burst, and for a week the troops were put on less than two pints per day.

On December 8th instructions came from the British Cabinet that Anzac and Suvla should be evacuated, but Helles for the present retained.[3] From the 9th onwards events marched with increasing rapidity through the "intermediate" to the "final" stage of the Evacuation. In the former the removal by night of troops and materiel to Mudros, where large concentration camps were established, was continued without change in method but in larger numbers and with increasingly obvious purpose. The fact that this movement was really part of the evacuation of the Peninsula was still—officially—unknown except to those immediately concerned in the arrangements, among whom was necessarily the D.D.M.S., Anzac, whose return to the front coincided with the beginning of the second stage. As the moment for the final movement approached, its medical aspects became increasingly prominent. The basic principle which governed the medical arrangements was the instruction laid down in the manual of combined naval and military operations for enforced re-embarkation—namely, that "wounded men, if they cannot be embarked during daylight and without interfering with the re-embarkation of the other troops and materiel, must be left on shore, and the best arrangements possible must be made by the military commander for their care."

"Intermediate" and "Final" stages

In the preliminary stage, arrangements for the medical service had not differed from those of other branches of the army. Certain units left for Lemnos. On December 9th, when the preliminary stage ended, there were at Anzac, besides regimental establishments, eight infantry and five light horse and mounted field ambulances, three casualty

Medical plans for the Evacuation

[3] At a meeting of a joint naval and military committee at Imbros on November 30 it was agreed that Anzac and Suvla should be evacuated simultaneously, but that, owing to the lack of motor lighters and small troop-carrying ships, the evacuation of Helles could not be carried out at the same time.

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clearing stations, a stationary hospital, two sanitary sections, and an advanced dépôt of medical stores, comprising in all 110 medical officers and 1,810 other medical ranks.

The immediate concern of the D.D.M.S., Anzac, was to get rid of all superfluous units and to ensure that all sick, however slight, left the Peninsula at once. From December 11th onwards field ambulances left the Peninsula when their formations withdrew. They took their "more valuable equipment," but left "tents standing." On this date the Australian stationary hospital, the 16th British Casualty Clearing Station, and four field ambulances embarked. On the 12th 900 sick were evacuated to hospital ships. On the 14th the D.D.M.S., A. & N.Z. Army Corps, issued his instructions to the A.D'sM.S. for the final stage. For this the essential feature of the military plan was based on the principle that the final retirement, to occupy some thirty-six hours, should consist in the gradual thinning of the front line, a skeleton force being left there to the last, since reliance was placed on deceiving the enemy till the last moment instead of fighting back on a progressively narrower front. It must be noted that even General Monro expected that a third of the whole force would become casualties. To the 13th British and 1st Australian Casualty Clearing Stations was allotted the honour of remaining at Anzac in charge of the wounded, whose subsequent removal under the Red Cross flag would—it was expected—be permitted by the enemy. Dressing stations were to be left with tents standing and fully equipped, and on the final night seriously wounded were not to be transported but dressed on the spot and left for subsequent collection. Supplies sufficient for 1,200 patients for thirty days were stored in the clearing stations. On the 16th the rear-guard commander was informed that "for over 1,000 casualties" he was to leave the two clearing stations; "for about 500," two-thirds of the 1st Australian Casualty Clearing Station; and "for about 100," one officer, one N.C.O., and six other ranks of this unit. Stretcher-bearers from the field ambulances were attached to brigades in the proportion of ten to every 1,000 men. The intermediate stage, which began on December 10th, was successfully completed on the night of the 17th: the two essentials to the success of the scheme, fine

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weather and complete deception of the enemy, were happily secured. The final stage commenced on the night of the 18th and was completed at 3.40 a.m. on the 20th.

The Evacuation—complete success

It is unnecessary to describe the details or to recount the circumstances of the happy *dénouement* of this now historic event. No casualties occurred through enemy action. The little party of the Australian clearing station, though not absolutely the last to leave, was honourably in the rear. The evacuation of Suvla was equally successful, its final stage being based entirely on Kephalos, while that of the Anzac evacuation was based on Mudros.[4]

The Lines of Communication and Base

The arrangements for the evacuation of sick and wounded on the lines of communication, and for their disposal, centred on Lemnos, which was now practically the expeditionary base as well as head of the lines of communication. They merged with—and till the final stage were not distinct from—the preparations already under way for providing against any heavy rushes of casualties that might occur in the campaign. These preparations hinged on the potentialities for rapid clearance by vast Atlantic liners—*Britannic, Aquitania, Mauretania, Franconia,* and others—from Mudros Harbour. At the expeditionary bases the arrangements for the accommodation of sick and wounded were now so complete, and the organisation for disposal in convalescence and return to duty

[4] The numbers re-embarked from Suvla and Anzac from December 11 to 20 are as follows:—

Date.	From Suvla.		From Anzac.		Daily Total.
	To Mudros.	To Imbros.	To Mudros.	To Imbros.	
Dec. 11 ..	128	..	628*	..	756
Dec. 12 ..	1,712	..	1,818	..	3,530
Dec. 13 ..	2,735	..	3,951	..	6,686
Dec. 14 ..	1,850	..	2,201	..	4,051
Dec. 15 ..	2,091	87	2,662	..	4,840
Dec. 16 ..	1,306	..	1,227	..	2,533
Dec. 17 ..	3,239	..	583	..	3,822
Dec. 18 ..	2,148	532	1,116	..	3,796
Dec. 19 ..	4,262	4,822	7,783	769	17,636
Dec. 20 ..	..	7,874	8,459	..	16,333
Totals ..	19,471	13,315	30,428	769	63,983

* British Labour Corps, Maltese, and Egyptians.

The above does not include over 20,000 sick and wounded taken off in hospital ships and other medical craft. Authority—War diary of Headquarters Lines of Communication, Q.M.G. Branch, Dardanelles Army.

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so greatly improved, that provision of ten or twelve thousand additional beds was largely a matter of administration—of local expansion, with clearance of recovered men to the dépôts and of invalids and convalescents to England, the latter being either direct or by the great liners from the deep-water harbour of Mudros.

Responsibility for the arrangements on the lines of communication fell on the capable shoulders of the I.G.C., General Altham, and on the D.M.S., M.E.F., with the P.D.M.S. at the Levant Base. On December 9th the War Office was asked to expedite the sailing of the hospital ships *Aquitania* and *Britannic*, and on the 16th was informed by the P.D.M.S. that 14,000 beds would be available in the Levant.[5]

The "Blizzard" casualties

As it turned out, the crisis, from the medical point of view, did not occur on the day after the Evacuation, when it was anticipated that thousands of wounded would be sought from the enemy on a scene of slaughter, but in the four days following the totally unexpected blizzard. Preparations were thus forestalled, and the overwhelming rush of casualties combined with the disorganisation wrought by the storm to try to the utmost the medical resources of the Dardanelles. The cases were desperately in need of treatment, and as many as possible were rushed to Mudros Harbour—some 4,000 in the week; but on December 4th, when less than 1,000 had been taken in, there were no vacant beds on shore. All the hospitals now "expanded"; the supply of tents, mattresses, and nursing equipment was sufficient, but through shortage of bedsteads many cases had to be treated on the ground. A number of "black" ships were hastily fitted—a reserve pool of medical stores and staffs being available at Mudros—and the *Franconia* was again used as a "dépôt hospital ship." At No. 3 Australian General Hospital were admitted

[5] The situation in the Levant at this time is shown by the following figures supplied by the P.D.M.S. to the War Office:—

	Hospital beds.	Convalescent beds.	Total beds.	Hospital population.
Egypt	18,000	17,000	35,000	21,000
Malta	13,000	5,000	18,000	14,000
Mudros	7,000	3,000	10,000	12,000*
Salonica	3,000	..	3,000	2,000
	41,000	25,000	66,000	49,000

* Including sick in hospitals on the Peninsula.

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many cases of severe frost-bite and gangrene from the cold. Many amputations on feet and toes had to be performed.[6]

Preparations for final casualties

The pivot for the clearance of casualties incurred in the evacuation of the Peninsula would normally have been the intermediate base and Mudros Harbour. But the blizzard had left the Lemnos hospitals crowded, and their clearance was rendered difficult by the retention of vessels for the Evacuation itself. The hospitals were ordered to expand from a normal of 6,526 to 13,010 (including convalescents), and probably this could somehow or in some degree have been effected. On the final night, December 19th, two hospital ships lay off the beaches at Anzac and at Suvla, while eleven more, including the *Aquitania* and *Britannic*, and some ambulance carriers were ready at Mudros. Each succeeding step of the retreat had automatically provided medical personnel available for emergency.[7]

But happily the enormous preparations were redundant; the expected tragedy had, in a sense, turned out to be a comedy. On the 23rd all hospitals were ordered to "revert" to the authorised number, and No. 3 Australian General and No. 2 Stationary, for example, "reverted" by a stroke of the pen from 1,700 and 1,200 to 1,040 and 624 respectively. The hospital ships *Aquitania* and *Britannic* left for England on December 26th and 29th, taking between them some 6,000 sick or wounded from hospitals at Mudros and invalids sent from Alexandria and Malta. Helles was evacuated by the night of January 8th, the methods adopted, and their result, being a repetition of those so successfully applied by the northern forces. The *Mauretania* had been sent out as hospital ship in preparation for this operation.

Disposal of the evacuated force

For the Australian troops, as they left the Peninsula between the 4th and the 20th of December, staging camps were provided on Lemnos, at Sarpi, for the 1st and 2nd Australian Divisions (5,965 and 7,209 respectively), at East Mudros for the N.Z. and

[6] For a realistic account of the condition of frost-bite cases as they arrived in hospital ship, and of the blizzard, see *In Grey and Scarlet*, by Sister R. A. Kirkcaldie, Q.A.I.M.N.S. and A.A.N.S.

[7] No. 1 A.S.H., for instance, was put in the troopship *Saturnia* and prepared her as a temporary hospital ship for 500, to take "any class of wounded" from the Peninsula during the final days.

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A. Division. Most of the troops spent Christmas on Lemnos, where ample provision of foodstuffs and satisfactory arrangements for camping and recreation had been made. Under these conditions, assisted by the psychological stimulus of the Christmas mails and by the generous provision made for the season by Australians at home, the troops regained their stamina with unexpected rapidity. No. 3 General Hospital became a social centre for all ranks, as well as a Mecca to regimental medical officers hungry for the intellectual food of clinical discussion and scientific surroundings, of which they had long been starved. The dental department was extended to its utmost capacity.

Troops transferred to Egypt

Transfer to Egypt began, before the Evacuation was complete, with the light horse. From December 22nd onwards the divisions and formations with their field units, and the stationary and clearing hospitals, left the harbour in rapid succession. Anzac Corps Headquarters, with Colonel Howse in his twofold capacity of D.D.M.S., Anzac, and D.M.S., A.I.F., arrived in Egypt on the 28th. By January 10th the whole corps (except the British units) was in Egypt: on January 20th No. 2 Stationary Hospital and No. 3 General were also transferred thither.

General Birdwood remained in command of the "Dardanelles Army"[8] until the final evacuation of the Peninsula; he then rejoined the A. & N.Z. Army Corps, and the command of the M.E.F. was on January 10th taken over by General Sir Archibald Murray, with headquarters at Cairo. Lemnos, for a time, remained intermediate base for Salonica (whither a large part of the Dardanelles force was transferred) and was visited occasionally by the great liners. Then the greatness thrust upon it—not for the first time in history—by the accident of its harbour and the tide of war faded away, and the vast "intermediate base" subsided, as quickly at it had grown, into the sleepy Levantine port.

As a preliminary to a summing-up of the cost of Gallipoli, it may be worth while to "appreciate" the medical aspects

[8] In November General Birdwood had been appointed by Lord Kitchener to command the M.E.F. vice General Monro, but, at his own urgent request, the appointment remained a dead letter. (See *Australian Official History, Vol. II. p. 788.*)

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of the campaign from a detached and philosophic point of view, even if the philosophising should resolve itself into a restatement of truisms. It is by the discovery of principles, rather than by criticism of their application, that useful fruit can be gathered from the upas tree of war.

A summing-up of the campaign

The Dardanelles Campaign shared with another subsidiary and exceptional set of operations—those in Mesopotamia—the distinction, not accorded at any time to the Western theatre, of a special inquiry by Royal Commission into the causes of "failure." In particular, the medical service of each was subjected to fierce criticism. In this respect official inquiry, as well as public feeling, was chiefly directed, not to those matters (in particular the prevention of disease) in which the medical conduct of the campaign did indeed influence its course and results, but to happenings, chiefly on the lines of communication, which only slightly, if at all, affected the purely military problems. It was in connection with the humanitarian side of its twofold responsibility that public opprobrium descended upon the medical service; and it was upon the circumstances under which the seriously wounded were evacuated that the searchlight of official investigation was most strongly focused. It cannot be denied that they were circumstances which illustrated, poignantly enough, the major "horrors of war." It may perhaps, after experience of other operations, be open to question whether, if the making of the omelet had been successful, the inevitable breaking of eggs would have brought so serious a concern. Be that as it may, a considerable degree of failure on the part of the medical service in this campaign must be admitted. Endeavour has been made in the preceding chapters, along with a narrative of the part played by the Australian medical service, to find an explanation in the operation of the inexorable laws of cause and effect, and so to assess the influence of special or personal factors. But while the causes of failure were in part special or personal, they were also undoubtedly due in a large measure to factors inherent in the nature of war itself.

A degree of medical failure

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Its causes not entirely local

The international acceptance of certain rights of the wounded in battle, and the systematic and organised collecting and evacuating of casualties, are a comparatively modern development of civilised warfare, and, being the outcome of the more recent, more complex, and "higher" aspects of social relations as evolved with civilisation, they are very sensitive to adverse circumstances and liable to derangement. Being at best only accessory to military success—by assisting in the maintenance of strength and of morale—efforts for the welfare of the wounded must of necessity always be subject to the fierce dominance of the elementary purposes of conflict. This position is reflected in the status of that department of the army which is here directly concerned.

From a medical point of view the effective evacuation of the wounded—especially of serious cases—calls for their immediate removal by special means to a place where suitable and sustained treatment is available. From the military point of view, on the other hand, those who count for most are the lightly wounded, who may fight again; therefore successful evacuation connotes the removal of the disabled from contact with the unwounded, whom they might demoralise, without interference with the fighting and with the least possible provision of special means of transportation. Thus the interests of the wounded themselves are often in conflict with those of the military machine. It is the part of the medical service in its dual responsibility, military and humane, to adjust the balance and to serve both requirements as effectively as possible. At this stage of the war, and in the unusual circumstances that prevailed at Gallipoli, especially in the first stage of the campaign, this adjustment was much less complete than it became at a later time. Much of the criticism of the evacuation of the wounded in the Dardanelles Campaign was, in fact, of the nature of a condemnation of "war in general"[9] rather than of its conduct in this particular case. On the humanitarian side, the conclusion of the whole matter resolves itself largely into a question of cost—the cost, in money, of special medical organisation maintained in readiness for war

A dual adjustment

[9] As was pointed out by Sir Ian Hamilton in connection with evidence given before the Dardanelles Commission.

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and abreast of scientific advances, and the cost, in human suffering, of a ruthless "will to victory." How far is each of those prices worth paying?

In regard to the military aspect of medical service at Gallipoli, it may at least be said that its disasters compelled a new standard of endeavour, scientific and administrative, for the prevention of disease in the armies engaged in the Eastern theatre of war;[10] and to this, it may be added, research originating in Australian units happily contributed on the scientific side, while, in its application in the Palestine Campaign, Australasian medical officers were to play an important part.

Of the Australian medical service, as of the A.I.F. itself, it may be said that by the end of the campaign it had found itself and had its own standards and ideals. Gallipoli was not all "disease"; and, while it can be accepted that the British regular units were (as stated by General Babtie) "the backbone of the medical organisation of the Dardanelles," it may not perhaps be unseemly to claim that in the collection, evacuation, and treatment of sick and wounded the part played by the medical service of the A.I.F. was a worthy and not unimportant one.[11]

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[10] This fact has been well brought out by various writers in the British *Official History of the War, Medical Services, "Pathology."*

[11] Deaths and wounds resulting from enemy action at Gallipoli were as follows:—

	Killed in action.	Died of wounds.	Wounded.	Total.
British (including Australian and New Zealand)	21,788	7,970	74,998	104,756
A.I.F.	5,833	1,985	19,441	27,259
A.I.F. medical units (excluding regimental medical establishments)	33	35	225	293

LIST OF DEATHS AMONG A.A.M.C. MEDICAL OFFICERS.

Captain G. C. M. Mathison, 2nd Fld. Amb., died on 18 May, 1915, of wounds received at Helles while acting as R.M.O., 5th Bn.

Captain S. J. Campbell, R.M.O., 8th L.H. Rgt., died on 14 July, 1915, of wounds received at Anzac.

Major S. J. Richards, 1st A.C.C.S., died of pneumonia while on shipboard off Anzac, 21 July, 1915.

Captain K. M. Levi, No. 1 A.G.H., killed at Helles on 7 August, 1915, while acting as R.M.O., 2nd Bn., Hampshire Rgt.

Captain J. F. G. Luther, R.M.O., 15th Bn., killed at Anzac on 25 August, 1915.

Major F. M. Johnson, 6th Fld. Amb. (2nd Div. Sanitary Officer), killed at Anzac on 29 November, 1915.

Captain H. F. Green, 6th Fld. Amb., killed at Anzac on 29 November, 1915.

Captain A. Verge, R.M.O., 6th L.H. Rgt., died of dysentery contracted at Anzac, 8 July, 1915.

Captain J. D. Buchanan, 2nd L.H. Fld. Amb., died in No. 1 A.G.H., 21 December, 1915.

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CHAPTER XXI

SOME SPECIAL DISEASES: PATHOLOGY: SURGERY

In this chapter are discussed certain scientific aspects of the work of the medical service which relieve the otherwise drab tale of disease at Gallipoli. The medical statistics of the campaign are presented in the form of tables and graphs, and are compared with corresponding figures for the South African war. They have been designed to illustrate the subject of disease in war from the point of view, primarily, of the measures necessary for its prevention: and will be continued in similar tables in *Volume II* which will show the incidence of disease in the A.I.F. in France and England. A further series will show the causes for which men were invalided from the Australian Force. The surgical aspects of the campaign also are briefly summarised, and the incidence and mortality from disease and wounds compared.

* * *

General Statistics—comparison with S.A. War

A comparison of the statistics of disease with those in the South African War—its more legitimate analogue—will show that gastro-intestinal infection was the prevailing type in both campaigns, but that the chief infecting agents were somewhat different. While the "enteric" group of diseases was relatively small at Gallipoli and far less fatal, that of dysentery and diarrhœa was even larger, though the case mortality was much lower. The rate for all intestinal infections in the A.I.F. is, in fact, comparable only with their "enormous"[1] incidence in the siege of Ladysmith itself. The general sick wastage in the A.I.F. for the Gallipoli campaign was much above the South African.

[1] *The Medical History of the War in South Africa—an Epidemiological Essay*, by Lieut.-Col. R. J. S. Simpson, R.A.M.C.

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TOTAL NUMBER OF ADMISSIONS TO HOSPITAL (INCLUDING FIELD AMBULANCES) FOR SICKNESS AND WOUNDS AMONG ALL CLASSES OF TROOPS IN THE A.I.F. OVERSEAS IN 1915, EXPRESSED AS RATE PER 1,000 PER ANNUM OF THOSE EXPOSED TO RISK (MEAN STRENGTH). COMPARED WITH THE CORRESPONDING FIGURES FOR THE SOUTH AFRICAN WAR.

Disease—	*Australian Imperial Force.*		
Enteric fevers	93.52	93.52	
Dysentery	147.35	242.42	396.07
Diarrhœa	95.07		
Other intestinal infections ("enteritis" and "colitis")	60.13	60.13	
All other infections ..	606.77	..	606.77
Other diseases (including disability from physical causes)	452.78	..	452.78
All diseases	1,455.62	..	1,455.62
Wounds and accidents ..	453.21	..	453.21
Total	1,908.83	..	1,908.83
	British Force in South African War.[2]		
All diseases	843.07	..	843.07
Wounds	47.95	..	114.90
"Other causes (not disease)" ..	66.95		
Total	957.97	..	957.97

The hospital admission rate for A.I.F. troops at Gallipoli during the period of the operations (May to December, 1915), calculated at a rate per thousand per annum of men exposed to risk, was:—for "enteric" 164, "P.U.O." 43, "dysentery" 258, "diarrhœa" 166, "other intestinal infections" 105, making a total for "gastro-intestinal infections" of 736 per thousand per annum. The corresponding figures for the siege of Ladysmith (three months), similarly adjusted, were:—"enteric fever" 304, "simple continued fever" 230, "dysentery" 437, "diarrhœa" 116, "inflammation of intestines" 10, making a total of 1,097 per thousand per annum.

[2] The admissions per thousand per annum in the South African War were:—for enteric and simple continued fever, 204.28; dysentery, 85.81; diarrhœa, 42.15; malaria, 56.64; other diseases, 454.19.

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DEATHS PER THOUSAND OF "EXPOSED TO RISK" AMONG A.I.F. OVERSEAS DURING 1915.

	A.I.F.	as against	South Africa.
Enteric fevers	2.32	„	18.06
Dysentery	1.19	„	3.02
Diarrhœa	.12	„	.05
Other "intestinal"	.17	„	.05
Other "infectious"	5.00	„	.20
Other diseases	2.28	„	3.20
All diseases	11.68	„	24.58
Died of wounds	38.69	„	3.92
Killed in action	113.65	„	9.59
Total deaths	164.02	„	38.09

DEATHS IN A.I.F. PER HUNDRED ADMISSIONS FOR DISEASES OVERSEAS DURING 1915.

Disease.	Admissions (total).	Deaths (total).	Case Mortality. A.I.F.	as against	South Africa.
Enteric fevers ..	4,110	119	2.89	„	13.90
Dysentery ..	6,475	61	.94	„	3.52
Diarrhœa ..	4,178	6	.14	„	.11
Other intestinal	2,643	9	.34	„	.07
Other infectious	26,665	257	.96		
Other diseases (including physical causes) ..	19,898	148	.74	„	.64
All diseases ..	63,969	600	.94	„	2.90
Wounded (in A.I.F. incl. accidents) ..	21,580	1,471	6.80	„	6.55
"Other causes" (not disease) ..	..	..	..		.70
All causes ..	85,549	2,071	2.42	„	2.94

TOTAL DEATHS COMPARED.

	Diseases.	K.I.A. and D. of W.	Approximate ratio.
A.I.F. (1915) ..	600	7,818	1 : 13[3]
South African campaign	13,475	6,872	2 : 1[4]

[3] A.I.F. deaths from disease exclude 55 *en route* from Australia to Egypt. The total of A.I.F. troops arriving overseas to 31 December, 1915, was 113,426.

[4] The total of troops "exposed to risk" in the South African War (1899-1902) was 548,237. Simpson, *op. cit.*, pp. 51-3.

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DEATHS IN A.I.F. DURING 1915 THROUGH ILLNESS AND INJURY (OTHER THAN DUE TO ENEMY ACTION), CLASSIFIED BY DISEASE GROUPS.

From non-transmissible diseases.

	Australia.			Overseas.				Grand total.
	Before embarkation.	After return.	Total.	At sea.	Egypt, Gallipoli.	England and Miscellaneous.	Total.	
Accidents and injuries ..	37	2	39	8	30	2	40	79
Nervous system	8	..	8	5	6	..	11	19
Mental and moral (alcoholism and self-inflicted wounds)	9	5	14	3	6	..	9	23
Gastro-intestinal	4	..	4	6	16	4	26	30
Lungs and pleura ..	..	..	..	..	..	..	..	..
Cardio-vascular	4	3	7	5	10	2	17	24
Genito-urinary	5	..	5	..	9	..	9	14
Endocrine glands ..	1	..	1	..	..	..	..	1
Diatheses degenerations and general diseases still of uncertain origin	3	..	3	..	..	..	..	3
Disease from physical causes	2	..	2	9	6	..	15	17
Gas	..	..	..	..	..	..	..	..
Tumours	3	..	3	1	5	..	6	9
General debility and impaired constitution ..	1	..	1	..	1	..	1	2
Other diseases or disorders	..	..	..	1	..	1	2	2
	77	10	87	38*	89	9	136	223
From specific infections and infestations.								
Gastro-intestinal infections	5	..	5	14	184	4	202	207
Naso-pharyngeal and inspiratory infections ..	354	5	359	40	217	8	265	624
Diseases transmitted by special animal or insect carriers	..	1	1	..	3	..	3	4
Direct infection (smallpox)	..	..	..	..	5	..	5	5
Tubercle and other chronic infections	6	3	9	3	5	3	11	20
Septic infections (excluding wound infections) ..	4	1	5	2	19	1	22	27
Venereal contagions ..	..	..	..	..	1	..	1	1
Wound infections (accidental wounds)	..	..	..	..	1	..	1	1
Transmissible diseases of uncertain aetiology ..	..	..	..	3	5	..	8	8
P.U.O.	..	..	..	1	..	..	1	1
Total	369	10	379	63*	440	16	519	898
Non-transmissible ..	77	10	87	38	89	9	136	223
Transmissible	369	10	379	63	440	16	519	898
Grand total	446	20	466	101*	529	25	655	1,121

* Includes deaths *en route* from Australia.

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DEATHS IN A.I.F. DUE TO ILLNESS, ACCIDENTS, ETC. (OTHER THAN DUE TO ENEMY ACTION).[5]

	1914.			1915.			Jan.-June, 1916.*		
	In Australia.	Overseas.	Total.	In Australia.	Overseas.	Total.	In Australia.	Overseas.	Total.
January ..	..	..	..	8	18	26	25	68	93
February ..	..	..	..	6	16	22	33	62	95
March ..	..	..	..	9	35	44	30	42	72
April ..	..	..	..	13	26	39	38	41	79
May ..	..	..	..	21	43	64	55	38	93
June ..	..	..	..	25	41	66	68	50	118
July ..	..	..	..	35	67	102	..	..	..
August ..	..	..	..	107	78	185	..	..	..
September	2	..	2	80	80	160	..	..	..
October ..	9	..	9	65	97	162	..	..	..
November	7	6	13	57	88	145	..	..	..
December	8	8	16	40	66	106	..	..	..
Totals ..	26	14	40	466	655	1,121	249	301	550

* Excludes deaths in France and Belgium.

Scientific research

While conceding first place, as well as priority of date, to the fine central laboratories of the M.E.F., an account of certain researches carried out or originated at this time in the Levant may without impropriety be made to centre on work done at the 3rd Australian General Hospital at Lemnos, since every line of pathological investigation was exploited at that hospital with originality and considerable success. There is, indeed, no more interesting chapter in the history of the A.A.M.C., nor any more fraught with instruction and scientific inspiration, than that afforded by these four strenuous months of co-operation between the physicians and pathologists of No. 3 General Hospital, in which these two departments of medicine —so often unhappily sundered—were united in ideal collaboration. In effect, the routine work of diagnosis and treatment in a general hospital, amid circumstances of peculiar difficulty, was made, under the direction of a master mind, to subserve much wider ends, military and humane. It became the woof in the texture of a scientific research of which the warp had in great part been laid down and the pattern designed in

[5] The total deaths in the A.I.F. in Australia and abroad (excluding France), from August, 1914, to June, 1916, was 9,556.

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broad outline beforehand. The result is seen in notable contributions to current knowledge, and, what is even more important, in the opening of avenues of research which not only had a place in the medical history of the war, but are even now helping to broaden the path of progress in scientific medicine.

The pathological staff of this unit had been strengthened in England by the addition of the Director of the Lister Institute of Preventive Medicine.[6] From the beginning of the war the Lister Institute had been closely identified with scientific war activities, and its director was fully acquainted with the special problems. It was well-equipped and staffed for research in any branch of medicine—chemical, biological, bacteriological. With the institute behind him only awaiting war-problems to work upon, the director sought them where they are born—at the front. A fine equipment was selected in London for No. 3 General Hospital, and was purchased with Red Cross funds: other equipment was added from the Lister, whence also were brought specific diagnostic sera and cultures. This equipment was (with the rest) held up in Egypt, but at the end of August work commenced in a tent. From the outset, routine work, clinical and laboratory, became "research."

Typhoidal disease

The breaking-up of the "continued fevers" had begun as early as 1837, when Gerhard of Philadelphia differentiated typhoid from typhus: by the beginning of the "Great War" each of these had in turn become only the type disease of a group. Typhoid had been split into three diseases by the differentiation[7] of "paratyphoid" ("A" and "B") from the *B. typhosus* of Eberth—"Eberthella typhi" of modern international nomenclature. After the South African War a controversy as to the efficiency of anti-typhoid inoculation led to the appointment by the War Office in 1904 of a special committee—with Dr. C. J. Martin as chairman—which found that much of the "enteric" in that war was probably paratyphoid. Experiments

[6] Major C. J. Martin, A.A.M.C., formerly Professor of Physiology in the University of Melbourne.

[7] First by Achard and Bensaude in 1896. The first reported outbreak occurred at Saarbrucken in Germany in 1902. v. Compt: rend: de Soc: Biol: 1896. Zeitchr: f. Hyg. 1901 (Schottmuller); and 1902 (Conradi, Drigalski, and Jurgins).

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with paratyphoid vaccine were initiated,[8] but in 1914 the question of the value of "combined vaccines" was still unsettled, and only the typhoid bacillus was used in the British (and Australian) vaccines.[9]

Early in 1915 Professor Georges Dreyer of Oxford had found that cases of "enteric" occurring in France among troops who had been inoculated were chiefly paratyphoid. The observations of Captain Archibald at East Mudros have already been mentioned.[10] At No. 3 General Hospital, from September onwards, all continued fevers were classified —physicians and bacteriologists controlling each others' findings—either by blood and fecal-culture methods in the early stage or (and chiefly) by repeated quantitative agglutination tests with specific typhoid and paratyphoid cultures and anti-sera. In this way large numbers could be investigated. It was found that, in the men inoculated against typhoid, a paratyphoid infection caused a great initial rise in agglutination for typhoid, a fact which explained the soaring of "typhoid" returns in the M.E.F. in spite of serological investigation. A special technique was therefore made necessary. A peculiarly interesting investigation must be summed up in the statement that, out of 350 cases investigated in October and November, only 7 per cent were typhoid, 61 per cent paratyphoid type "A," and 32 per cent type "B." Similar results, on a somewhat smaller scale, were being obtained by the more exact cultural methods at each of the M.E.F. central laboratories.[11] At No. 3 General Hospital no time was lost in following the facts to their logical conclusion. A typhoid-paratyphoid mixed vaccine was made and tested. Early in December the deputy D.G.M.S., Australia, cabled through the Australian Intermediate Base Dépôt an inquiry as to the advisability of a "mixture of typhoid and paratyphoid vaccines." This mixture was

Mixed vaccine made at Lemnos

[8] For example, in the British Army in India.

[9] In the Italian Army before the war, and in the Army of South Africa in the West African campaign of 1914, a combined vaccine was employed.

[10] *p. 350.*

[11] Of 65 cases specially examined in November from Gallipoli at the instance of the P.D.M.S., 3 per cent were typhoid, 77 per cent paratyphoid "A," 20 per cent "B." A summary of the results from all three laboratories in 519 unselected cases, issued by him in February, 1916, showed 11 per cent. typhoid, 44 paratyphoid "A," and 45 paratyphoid "B." At the Cairo Health Laboratory in 1913-14, of 249 cases investigated by cultural methods, 229 were typhoid, 19 paratyphoid "B." Paratyphoid "A" is stated to have been prevalent in Turkey and India.

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strongly urged, and a mode of preparation and dosage for a combined typhoid-paratyphoid vaccine was cabled, based on observations of the inoculation and immunity reactions in 100 men. In January, 1916, cultures of paratyphoid "A" and "B" from Gallipoli cases were forwarded to Australia through the D.M.S., A.I.F.

The War Office had rejected triple inoculation, chiefly through a fear that it might lessen protection against the more serious typhoid. In November, however, at a conference of naval, military, and civilian specialists in pathology, the weight of scientific opinion was found to favour it. A War Office committee was appointed, and early in 1916 "T.A.B." inoculation was made official in the British Army.[12]

The prestige of the medical service and medical profession was enhanced, and, in particular, confidence in preventive inoculation greatly promoted, by the episode of the Gallipoli paratyphoid epidemic. As an experimental test of the efficacy of inoculation it was convincing. The huge incidence of dysentery and prevalence of paratyphoid negatived "sanitation" as the cause of the lowered typhoid rate: the early appearance of foci of both types of infection (enteric and dysenteric) and the treatment of "P.U.O."[13] as well as of dysentery in the lines, gave equal opportunity for the spread of each disease. The early concern as cases of "typhoid" appeared; the anxiety as they increased; and the satisfactory explanation discovered, in paratyphoid, made the vindication of inoculation against typhoid fever not only complete but dramatic.

The Fluxes

Routine examinations at No. 3 Australian General Hospital in September confirmed the observations already made of the wide prevalence of *amœba histolytica* in stools of men evacuated with flux, and treatment with emetine was vigorously pushed; in a proportion of cases with, it would appear, satisfactory results. At

[12] The dosage adopted by the War Office was a first dose of 500 million typhoid and 375 million of each of paratyphoid "A" and "B," followed in 10 days by double the amount. At No. 3 A.G.H. a "maximal immunity response" without any severe reaction was obtained by three inoculations of 250 million of each, killed by 0.5 per cent phenol, and injected at an interval of from 7 to 10 days. This procedure was recommended to the Australian Government. The military advantages of two doses certainly offset any immunising superiority of three. The early experiences of the French Army with one dose only were disastrous. The theoretical aspect of the question of multiple vaccines remained throughout the war a matter of debate in the discussions of the "*Commission Sanitaire des Pays Alliés.*" (*This matter will be dealt with in Vol II.*) In the Italian Army a blunderbuss charge of some six or seven organisms was at one time employed.

[13] Which in a large proportion of cases was an early stage of enteric fever.

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the front, however, regimental medical officers and field ambulances[14] early in September found emetine generally ineffective even in large doses. At No. 17 British General Hospital—where exact observations on cases of flux had been carried out since April, 1915, and a cytological method of differential diagnosis worked out[15]—the fact that bacillary dysentery was the predominant type was observed early in August. The pathologists at Malta held that the bacillary type predominated throughout. Early in October a marked and (as it was thought at the time) sudden change was detected at No. 3 Australian General Hospital and elsewhere. Reporting to the commanding officer, the pathologists[16] stated that—

Amœbic or bacillary

during the last few weeks evidence from the examination of stools and post-mortem findings has accumulated, showing that bacillary dysentery has become more common than amœbic, which is the reverse of what obtained one or two months ago. At the same time medical officers have noticed that emetine treatment has been less successful than heretofore.

At a combined meeting of pathologists and physicians an exact scheme of treatment was drawn up for the two types of disease. At both No. 3 General Hospital and No. 2 Stationary dysenteric anti-serum was used with the common result—some striking successes but many failures. From the end of October amœbic dysentery was hardly seen as an independent disease: the incidence of hepatic involvement was trifling. The extent to which this was due to the early and extensive use of emetine is out of reach even of conjecture. But the course of the "dysentery" epidemic, it is suggested, is fairly clear: proof[17] of the transmission of the cyst of *amœba histolytica* by the fly and of the rapid death in dejecta of the *B. dysenteriæ*[18] has an important bearing on the question. Carriers of *amœba histolytica* and of the specific bacilli[19]—both of which organisms are found in all communities—are very

[14] For instance, the 108th Indian Field Ambulance, at Anzac, whose officers were well acquainted with the various types of the disease.

[15] Willmore and Shearman, *The Lancet*, 17 August, 1918.

[16] Major W. G. D. Upjohn, A.A.M.C.; Major C. J. Martin, A.A.M.C.; Lieut. P. H. Bahr, R.A.M.C. (temporarily attached); Sister F. E. Williams, A.A.N.S., also began on Lemnos her long and useful association with the laboratory.

[17] By Wenyon and O'Connor in 1916 (Memorandum to the Medical Advisory Committee).

[18] Martin and Williams (*see Vol. II*).

[19] The precise signification of the term "carrier" is still a subject that calls for exact observation, and as applied to bacillary dysentery is even more obscure than generally. Very divergent views are still held on this matter. In their

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common in Egypt and Turkey, where amœbic and bacillary dysentery are widely endemic,[20] and the troops became well infected. The sole relation between these infections—as between the various venereal diseases—is in their mode of expression. The protozoal form does not occur in true epidemics, and the disease in its early stages (and often throughout) is a mild and insidious illness; the protozoon—which forms a "proteolytic enzyme" or "toxic substance," but no endotoxin or exotoxin productive of tissue reaction—burrows at first superficially, and soon forms small local deep ulcers, which may, however, cause little or no disturbance even in cases where extensive secondary foci, such as liver abscess, are developing. But under adverse conditions—of diet, debility, and so forth, and of intense infestation such as occurs in tropical countries and unhygienic circumstances—the course may become rapid, even fulminant, with gangrene of gut and rapid death. Bacillary dysentery has a totally different pathology and course. The specific bacillus being highly toxic (particularly the Shiga type, which was that predominant at Gallipoli), the disease is almost always at first acute, varying from a mild diarrhœal attack to a fulminant and very fatal febrile illness, but most often of such severity that the man must "report sick." In the established disease the lesions are numerous and superficial, reaction intense; the multiplication of the specific bacteria is enormous, but both their prevalence in the bowel after recovery and their viability in the dejecta outside the body are slight. Hence the immediate infectiveness is intense, but rapidly diminishes. It happened therefore that the number of effective "carriers" of bacillary

article on the dysenteries Dew and Hamilton Fairley in 1921 (*Medical Journal of Australia*, 4 January, 1921) affirmed that "carriers of bacillary dysentery are practically unknown," while Manson Bahr in the sixth edition of *Manson's Tropical Diseases*, 1921, stated that "a carrier state supervenes in about three per cent of recovered cases of bacillary dysentery; by the term 'carrier' is meant a condition in which the specific bacilli continue to be excreted in an otherwise normal stool." It is now generally accepted that the "convalescent carrier" state may follow clinical convalescence in a large proportion of cases in this type of disease, and may be effective for considerable periods after clinical recovery, but there is still much divergence of opinion regarding the existence of a true "contact carrier" state in the bacillary form; or the presence of the specific bacilli in the absence of any local lesion. In all armies and communities bacillary dysentery will occur as an outbreak under suitable conditions, and apart from the existence of a carrier state as a source of the *materies morbi*, it becomes necessary to postulate for any outbreak an unbroken series of cases. Such a sequence was, it is true, possible at Gallipoli: and further, "No-Man's Land" had no terrors for the Turkish flies: but this alternative does not invalidate the general argument of the text.

[20] "Dysentery" was reported in the Turkish Army as early as June.

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dysentery imported into, and accumulating on, Gallipoli was at first small, the number of amœba-infested persons comparatively large. Amœbic dysentery "got ahead" first, but before August it was caught and was soon overwhelmed in the far more serious outbreak of bacillary dysentery. It was some time before this change in the type of the infecting agent was observed. The bacteriological staff of No. 3 A.G.H. has candidly acknowledged as much:—"We all, physicians and pathologists, having learned to recognise amœbic dysentery, continued for a time to mis-diagnose the bacillary form." This was the more pardonable inasmuch as in many cases amœbic infestation co-existed with a specific bacterial infection; but it must be granted that the delay in recognising the clinical change in the character of the disease was due in some measure to what may be termed an "amœbic obsession,"[21] together with the technical difficulty of bacteriologically differentiating the bacillary form—a difficulty in some degree resolved by the researches initiated through events at Gallipoli. The impetus given to research by the complexity and urgency of the problem of "dysentery" in the early stage of the campaigns in the East was, indeed, such as to mark an epoch in researches into the aetiology of both the protozoal and the bacterial forms of infection.[22]

An immediate result of the epidemic and of the work done at Lemnos was a greatly extended demand for specific

[21] The commonest cause of error on the pathological side in the diagnosis of amœbic dysentery—confusion of non-pathogenic entamœbæ and endothelial cells with *E. histolytica*—may in some measure be discounted as a factor in the records of the Gallipoli outbreak: men experienced in the identification of the specific amœba (which demands special technical experience) were on the staff of most laboratories. The results of research in the Medical School of Cairo were embodied in a work on "amœbiasis and the dysenteries" published in 1915 by the Professor of Medicine, Dr. Phillips, wherein the results of infestation with the pathogenic amœba, and its identification, were clearly presented. It is right to state that the opposite view is generally held. Thus Dew and Fairley (loc. cit.), in connection with the differentiation of *amœba histolytica* from endothelial cells, say: "undoubtedly this resemblance led to much confusion in the laboratory diagnosis of the dysenteries both in Gallipoli and other Mediterranean war zones." *See p. 459.* The British and Canadian official histories give respectively 10 and 80 per cent for the amœbic form of dysentery at Gallipoli! British Army reports and journals even of recent years still indicate amazing differences of opinion as to the nature of the dysenteries prevailing among troops in the East.

[22] For an account of these researches during the war and a full bibliography up to 1923 the reader is referred to the *British Medical History of the War. Disease, Vol. I.* and *Pathology in the War;* and to the reports of the Medical Research Committee. See also *Medical Journal of Australia*, 6 January, 1923. "Dysentery: Bacillary and Amœbic" (Dr. Marjorie Little), and ibid 4 January, 1924, "The dysenteric infections" (Dew and Hamilton Fairley).

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diagnostic and curative sera for military purposes. Of these the Lister Institute became the prime source of supply. Perhaps the most important moral to be drawn from the outbreak is the strategic importance of well-equipped laboratories and well-trained bacteriological staff as part of the field organisation for a military campaign.

Moral drawn

Not all the fluxes were specifically dysentery, and the question of the cause of epidemic diarrhœa and the relation between the fluxes was investigated in the M.E.F. central laboratories. Certain motile protozoa (lamblia, trichomonas, etc.) —already associated by Egyptian pathologists with the dysenteries—were incriminated as a cause of chronic flux in a considerable number: massive non-specific bacterial infection was noted as a feature in many cases. *B. fecalis alkaligenes* was found at No. 3 Australian General Hospital to be associated with a febrile flux. Whatever may have been the importance of the physical causes as predisposing, it seems certain that, to a degree far beyond other factors, the "diarrhœa" as well as the "dysentery" was due to infection, in the vast majority of cases by the specific organisms of dysentery.

Epidemic diarrhœa

The considerations that have led to the incrimination of the house-fly as the chief factor in the outbreak of gastro-intestinal infections at Gallipoli, and to the discounting of acknowledged defects in the transportation of water from overseas, and lack of chlorination, have been sufficiently stated elsewhere. It should however be pointed out in this connection that the conditions of Gallipoli were exceptional. The importance of the water problem and the remarkable success achieved in the application to the requirements of active service of the germicidal properties of chlorine gas will be treated in *Volume II.* At this time—though the procedure was official and in general use—its efficacy under active service conditions was still in debate.[23]

[23] In this connection it is of interest that in September, 1915, the Medical Advisory Committee, through the D.D.M.S., L. of C., suggested that "an investigation should be made as to the power of chlorine . . . . to destroy amœbæ in water," by the pathologists at No. 3 A.G.H. It was pointed out (in reply) that "the amœbæ causing dysentery have not so far been cultivated out

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Epidemic jaundice

The pathology and aetiology of this peculiar epidemic were investigated at No. 3 Australian General Hospital. As elsewhere, no specific causative agent could be discovered by microscopic examination or blood culture; but the observations lent no support to the view, widely held, that it was merely a manifestation of paratyphoid, but "pointed to an acute systematic infection producting an acute hepatitis with necrosis." The disease presented many analogies with *spirochætosis icterohæmorrhagica* (discovered in 1914), the spirochæte of which is notoriously difficult of detection except by animal inoculation. This was prevalent on the European front. But in default of aetiological analogues—such as the presence of rats—and in view of the mildness of the symptoms, the outbreak must be put among the infections that still await exact elucidation. Similar outbreaks occurred later in the Italian and Roumanian armies. It was certainly an importation to the Dardanelles from Alexandria.[24]

The food factor

The frequency of septic sores and of cases of generalised œdema, combined with evidence of lowered resistance to infection and with other features of the health picture, led to a clinical integration of great importance at the time, and, from the historical standpoint, not without scientific interest now. It was recognised early at the Australian hospital that in some cases œdema and other symptoms formed a syndrome characteristic of deficiency in the food factors whose absence causes "beriberi," cases of which were definitely diagnosed at this hospital. The view was hotly contested; the epidemic of "jaundice," for example, was claimed as the cause of the œdema; but in the light of the greater knowledge now possessed the conclusion above mentioned seems fully justified.[25]

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of the body," and that though "analogous experiments with the encysted form of the common non-pathogenic water amœbæ would not be difficult to carry out . . . investigations we have in hand as to the relative proportion of amœbic and bacillary dysenteries, and of typhoid, paratyphoid 'A,' and paratyphoid 'B' infections, in this and neighbouring hospitals, are at present more than enough to occupy our limited staff." (*See also p. 802, Part III.*)

[24] Jaundice of a similar type is a not uncommon war disease. In the American Civil War, 70,000 cases are stated to have occurred, and 5,600 were recorded in the South African War of 1899-1901.

[25] It is desirable, perhaps, to recall the fact that knowledge of the rôle of these substances in the nutrition of the body was then far less exact and general than it is to-day. For instance, the differentiation of the water-soluble B vitamin into Bi (anti-neuritic) and Bii (anti-pellagra) moieties, had not been made: and the biochemical study of the vitamins had barely commenced.

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From June onwards cases of scurvy were numerous among the Indian troops on the Peninsula: in October this was—with dysentery—"the prevailing disease" in at least one Indian field unit. It had not yet been diagnosed in Europeans, but certain petechial eruptions were recognised as probably scorbutic.

A widespread vitamin deficiency was postulated by the workers at No. 3 Australian General Hospital as playing a part in the prevailing ill-health; in the aetiological picture it fills a gap between "hardships" and "infection." In the disease *débâcle* of Gallipoli—no slighter word will suffice—no single factor can indeed be blamed. There arose a series of vicious circles wherein various physical and physiological factors—among which fatigue, hardship, mental nausea due to lack of relief, water famine, dust, diet, and dental disease are conspicuous—combined with infection and specific dietetic deficiency to produce a syndrome that is only partly resolvable into separate pathological conditions and is seen as much in general "unfitness" as in curves of disease. The British Army ration provided a scale of food-stuffs in which the caloric requirements were sufficient and the protein-carbohydrate balance satisfactory. Provision was made for addition to the diet of half-a-pound of fresh vegetables—to be obtained by local purchase—and of lime-juice. Even with this provision, and if the latter were fully supplied (which at Gallipoli it was not), the ration was, as is now known, inadequate to protect from the effects of "vitamin" deficiency troops engaged in heavy work over a period of months.

The diet was defective in two special respects, namely, in Vitamin C (water-soluble anti-scorbutic vitamin) and also in Vitamin B (water-soluble anti-beriberi vitamin). Possibly also some of the effects noted may have been due to the general food deficiency producing the condition known as "war œdema," which appears to be brought about by lack of balance either of salts or of proteins. It cannot be said that either scurvy or beriberi was a prominent feature of the disease picture. Gallipoli was a dietetic warning, not a dietetic disaster. But, on the other hand, there can be no doubt that the vitamin deficiency played an important part

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in the general "debility" indicated by lassitude, loss of appetite, shortness of breath, right heart failure, muscular weakness, œdema, and, in particular, higher susceptibility to infection of all kinds.[26] Some Gallipoli cases resembled a well-known type of deficiency disease known as "ship beriberi," which is due to a combined deficiency of "B" and "C" vitamins. A proportion of men who had been on Gallipoli for long periods remained well and healthy. It is well known, however, that in experimental animals great idiosyncrasy exists in respect of response to vitamin deprivation.

No effective local or immediate action was taken in regard to scurvy or beriberi; knowledge on the matter was indeed at this time inadequate. Scurvy in the Indian troops increased seriously; severe outbreaks of scurvy, beriberi, pellagra, and ulcerative ophthalmia occurred in Turkish prisoners, among whom, it is evident, initial vitamin saturation was at a low level, so that they easily went "over the edge." But the observations made at the Dardanelles had influences reaching beyond the confines of that campaign and of the war; they initiated or stimulated researches which have supplied much of our present exact knowledge as to the distribution of the vitamins in nature.[27] Among much work of importance, that done at the Lister Institute may properly be referred to in continuance of the thesis proposed at the beginning of this chapter.

During the previous decade or so, the idea of accessory food factors had virtually been rediscovered.[28] Beriberi had

[26] In both beriberi and scurvy an early myocardial degeneration with symptoms of right heart failure is characteristic. In experimental avitaminosis in animals it is exceedingly difficult to prevent their death from inter-current infection by pneumonia or dysentery. The interesting case of the commander of No. 3 A.G.H. is mentioned on *p. 392n.* One nurse also suffered seriously from beriberi.

[27] A very full bibliography is given in the *British Medical History, Vol. I, Disease,* and in the publications of the Medical Research Committee. Some Australian readers will recall and refer to the post-graduate lectures delivered in Melbourne in 1926 by Sir (then Doctor) C. J. Martin.

[28] First conceived, or at least clearly and definitely propounded, in a classical monograph on scurvy by the British naval surgeon, Lind, published in 1753, wherein, from historical records, observation, and experiment, he postulated the presence of labile substances essential to life in the fresh juices of plants. As early as 1593 sour juices were recommended by one Albertus as a cure of scurvy, and in the same year Sir R. Hawkins cured his crew of scurvy by lemon juice. Its anti scorbutic value was referred to from time to time in medical works, and it was used intermittently by navigators. The drastic steps taken by Captain Cook to protect his crew during his second voyage in 1776 will be recalled by those familiar with Australian history. It was not, however, till 1795—in consequence of a scourge of scurvy sufficient to endanger the safety of the Channel fleet—that lime-juice was added to the official British naval ration.

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been shown by Eijkman in 1897 to be a disease of deprivation, and the idea of accessory food factors had been clearly postulated by Hopkins. The Lister Institute was closely identified with research on these lines (the term "vitamin" was coined there by Casimer Funk). Now, in response to communications from Lemnos, intensive investigation was initiated with the object of determining the distribution in nature and the physical properties of these vital and elusive substances. By feeding experiments in 1916-17 foodstuffs were classified in respect of both "B" and "C" vitamins, and the effect of cooking and preservation was determined. Methods of concentration and preservation suitable for war and peace were worked out. Thus Vitamin "C" was concentrated from lemon-juice: Vitamin "B" in "marmite" (from yeast[29]); germinating legumes and tinned tomatoes were found to be a full protection for the most susceptible animals. One observation of great interest bears directly on the Gallipoli experience. Scurvy increased among the Indian troops in spite of full lime-juice issue. Lime-juice had been given in abundance, but with no effect. "It appears to have no anti-scorbutic properties. This, I think," says the commanding officer of the 108th Indian Field Ambulance at Chailak Dere in September, "is due to the lime-juice issued being not the natural product of the lime or lemon." "I have very little faith in lime-juice," Surgeon-General Birrell wrote to the D.D.M.S., Anzac, in September.

It was found at the Lister Institute that the juice of the lime has only a quarter of the anti-scorbutic influence of that of the lemon or orange, and also that since 1875 the army lime-juice had been made from limes. This observation was rounded off by the discovery through the archives of the Admiralty that the original "lime-juice" of Lind and of the navy and army was made from lemons—then commonly known as "limes."

It remains only to recall the fact that after the war British and Australian workers from the Lister, working in

For various reasons—chiefly the use of unsuitable preparations—it fell again into disuse, and in the meantime the scientific study of the subject, initiated by Lind, had not been prosecuted. In the Crimean War (1854-56) 23,000 cases of scurvy occurred among the French troops alone: in the American Civil War (1861-65) 30,174 cases are recorded (*Oxford Textbook of Medicine, Vol. IV.*)

[29] Investigated also in 1914 and used in the Mesopotamia Campaign in 1916.

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von Pirkoff's Institute in Vienna on the deficiency diseases in the starved child victims of war, made observations on rickets and hunger osteomalacia which have become classic.

The following graphs show the incidence of disease in the A.I.F. during 1915, in terms of the rate per 1,000 of men exposed to risk admitted to hospitals (including field ambulances) each month. The figures in these graphs are derived from the statistical cards compiled from the "admission and discharge books" by the Medical Research Committee.[30]

Surgery at Gallipoli

The scope of this history precludes any detailed presentation of war surgery. In *Volume II*, however, an attempt will be made, in connection with the work of the various medical units, to trace the development of new procedures and methods as they gradually evolved, with infinite trial and failure, in the vast vivisection experiment of the war, and, in particular, to illustrate the application of those principles on which the surgery of war wounds has been founded and must expand in the future.

Only a brief survey can be made of the special features in the treatment of wounded in the Gallipoli campaign. During this period of the war the principles and practice of war surgery were in a state of flux; in all the warring nations the co-ordinating of experience and the prosecution of research were proceeding at high pressure. In the British Army in France principles and teaching based on the experience of the South African War and even of the recent Russo-Japanese War had proved misleading, and the consequent confusion was scarcely resolved after twelve months. The lines of advance had, however, been defined and (with certain peculiar omissions) were officially embodied in a "Memorandum on the Treatment of Injuries in War, based on experience of the present campaign," issued by the War Office in July, 1915.[31]

As with disease, the degree and nature of wound infection —the most important consideration in war surgery—varied considerably at the different seats of war. Apart from the ordinary pyogenic coccal infection—autogenous or from a

[30] [31] This matter will be dealt with in *Vol. II.*

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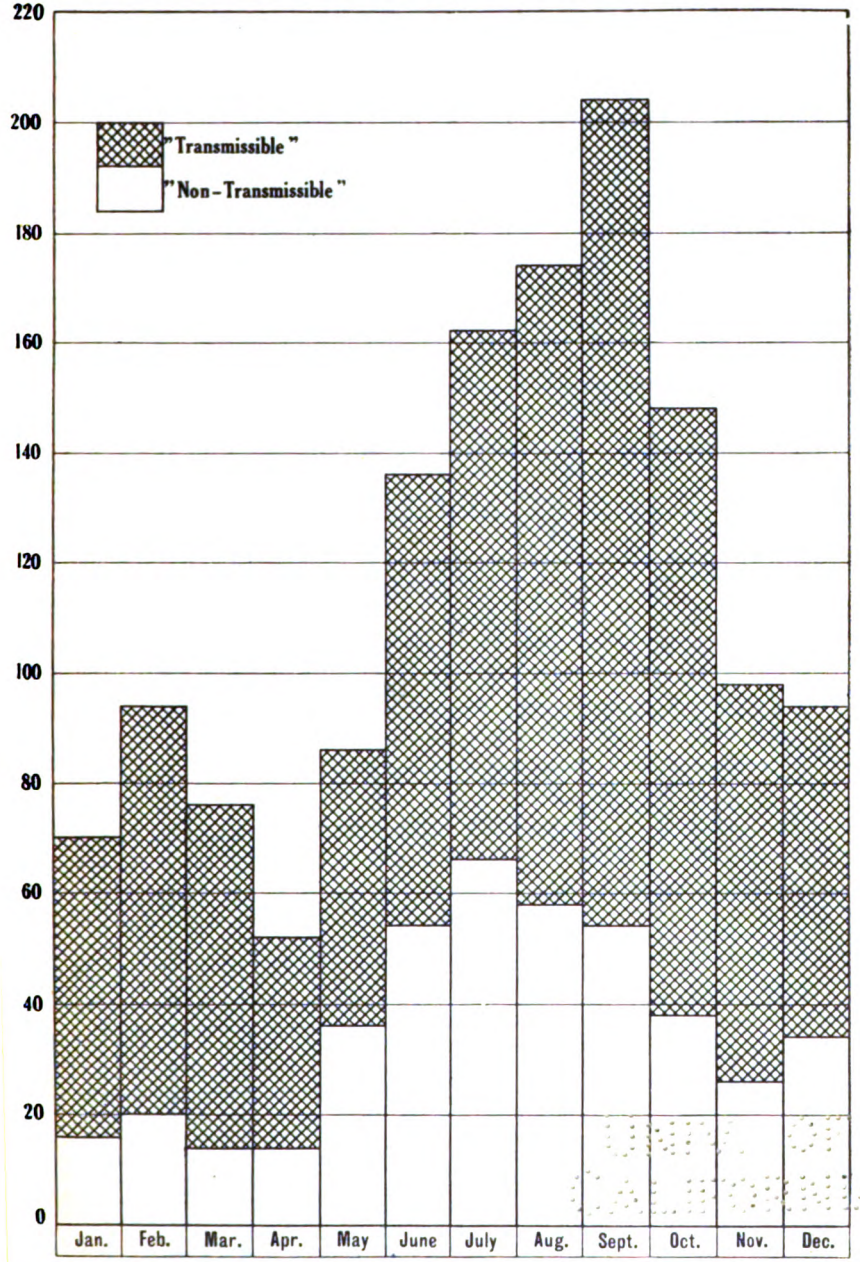
Graph 5

INCIDENCE OF DISEASES OF INFECTIVE AND NON-INFECTIVE TYPES COMPARED



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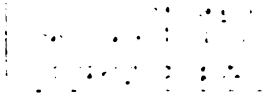

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Graph 6

DISEASE OF INFECTIVE TYPE ANALYSED INTO GROUPS OF RELATED DISEASES

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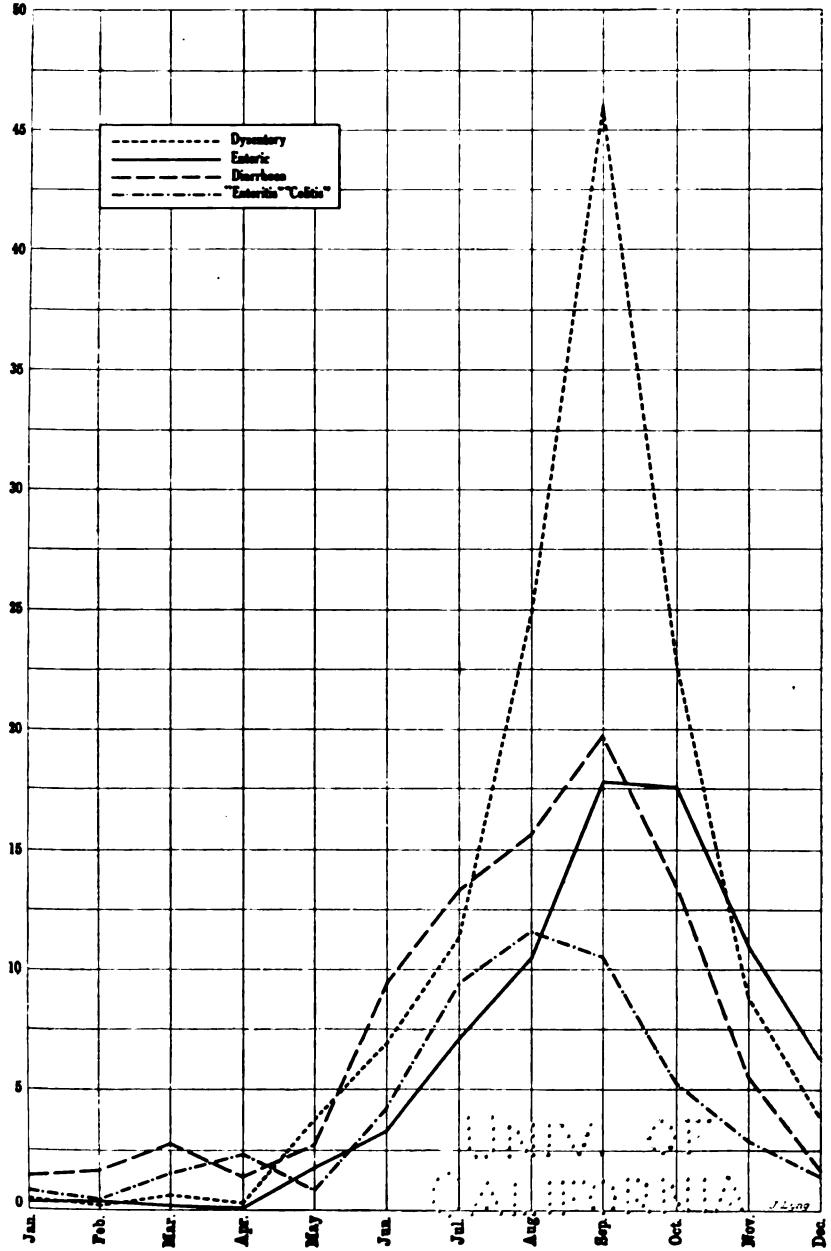
Graph 7

THE GASTRO-INTESTINAL GROUP OF INFECTIOUS (TRANSMISSIBLE) DISEASES ANALYSED INTO INDIVIDUAL DISEASE ENTITIES



The clinical diagnosis was controlled by laboratory investigation in probably not more than 25-30 per cent.

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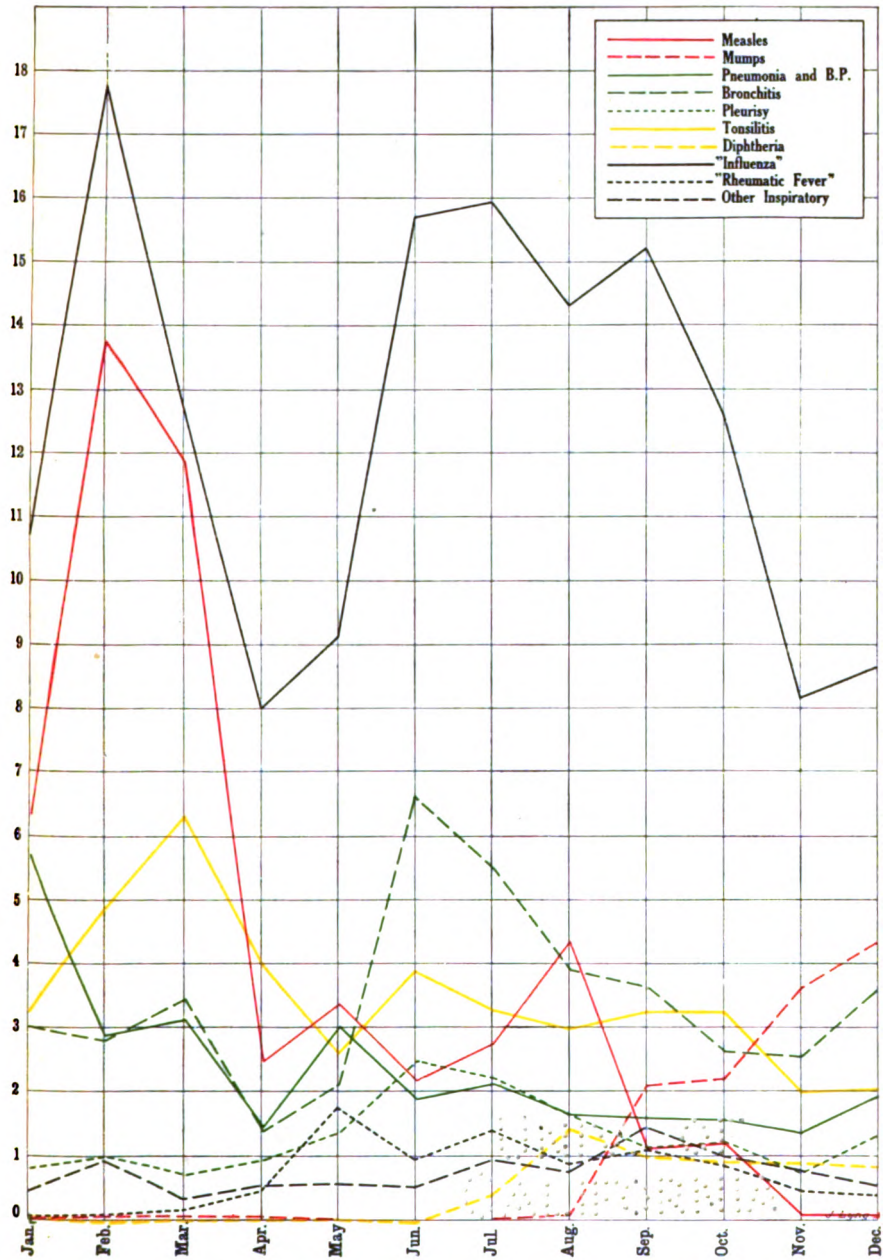
The naso-pharyngeal and inspiratory group of infectious diseases analysed into individual disease entities



"Other naso-pharyngeal and inspiratory diseases" include cerebro-spinal fever and scarlet fever.

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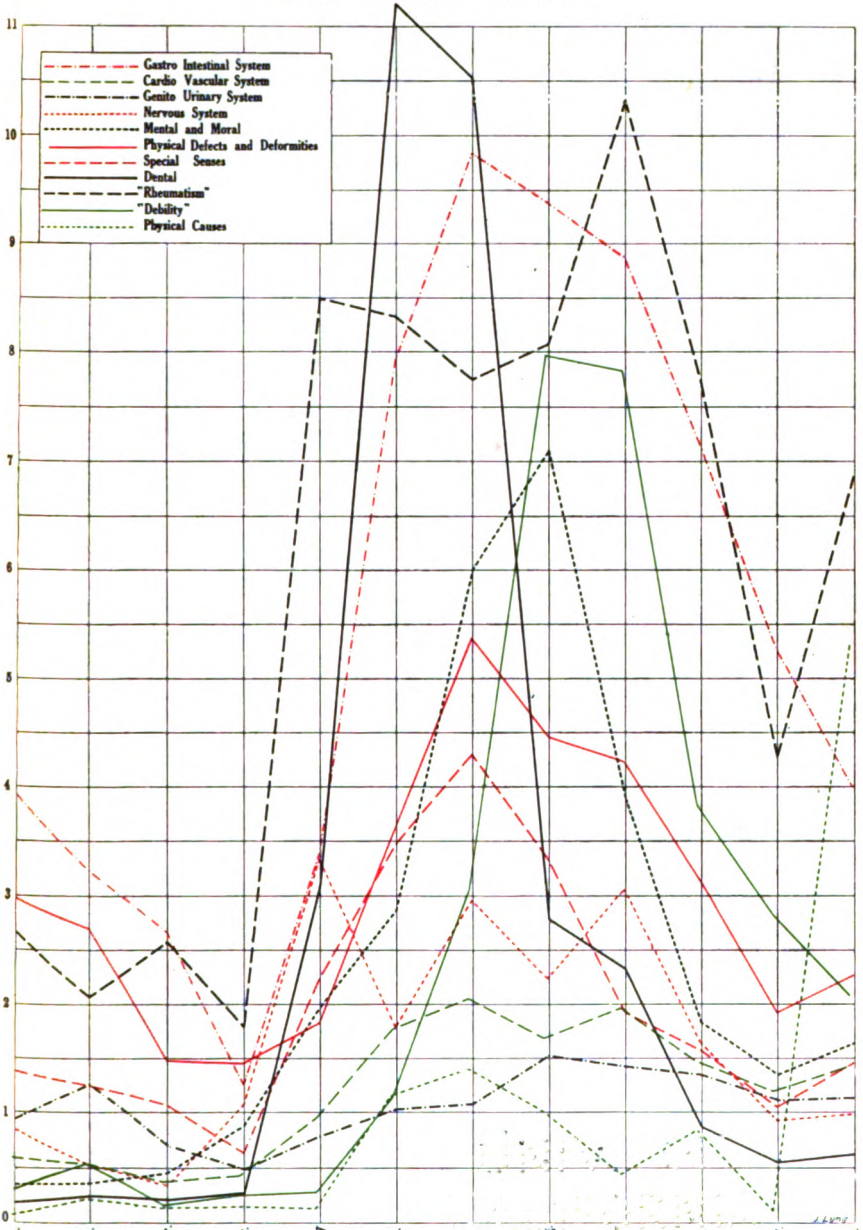
Graph 9

DISEASE AND DISABILITY OF "NON-INFECTIVE" ORIGIN ANALYSED INTO GROUPS OF RELATED DISEASES



"Non-infectious origin" signifies *immediate* origin. "Physical causes" exclude "accidental injuries"—in army returns distinguished from "sickness" and battle casualties. "Mental and moral" includes all psychic disorders: not epilepsy.

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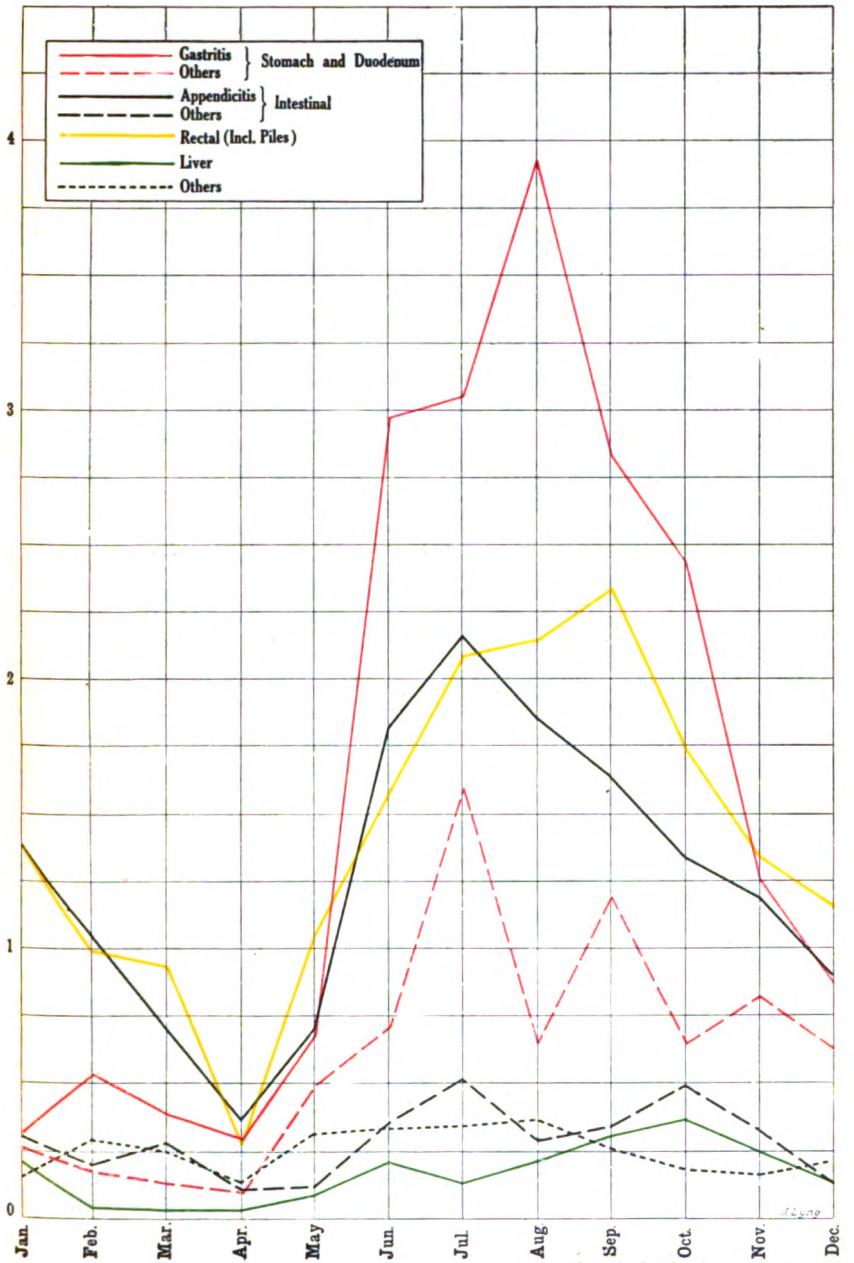
THE "NON-INFECTIVE" GROUP OF GASTRO-INTESTINAL DISEASES ANALYSED INTO INDIVIDUAL DISEASE ENTITIES



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"previous case"—the occurrence and nature of wound infection depends on the infective content of the "dirt" contaminating the wound through clothing, skin, or contact. In war this is influenced largely by the presence or absence in the soil of certain specific anærobic and commonly spore-forming bacteria.[32] Thus for wounds, as for disease, geographical circumstance as well as immediate physical environment may determine the predominant character of infection. At Gallipoli soil-infection by anærobes was unimportant, and true gas-gangrene relatively uncommon, even in deep and severe lacerations. Wounding was chiefly by bullet or shrapnel, and healing by "first intention" was common and was expected in uncomplicated wounds.

In France during 1915 debate on the various problems connected with the treatment of wounds was forced to a crisis by the terrible mortality from wound infection. From an early date the casualty clearing station was recognised as the key to the problem, and by the end of 1915 this unit was definitely cast for the chief rôle in connection with immediate surgery. The course of this development will be followed in *Volume II.* of this work. The conditions of Gallipoli compelled development on very different lines. Surgery in the Gallipoli campaign is of interest chiefly as it illustrates the influence on surgical procedure of time and circumstance. On shore at Helles and Anzac little more treatment could be carried out than first-aid or imperative surgery; the casualty clearing stations continued to function chiefly as clearing units. The first-aid differed little from that laid down in *R.A.M.C. Training* 1911 and other pre-war military text-books. Anti-tetanic serum was administered in the field, at first (by instruction) only "for dirty wounds" but after September for all.[33] Fourteen cases of tetanus, with ten deaths, are recorded as occurring in the A.I.F. during this campaign, but there were probably more.

In the middle of May medical officers of field formations in the A.I.F. were informed that "bullet and shell wounds"

[32] In particular *B. welchii, vibron septique, B. oedematiens, B. sporogenes, B. tetani.*

[33] A case is recorded by the 5th Field Ambulance of a death diagnosed as from "anaphylactic shock" five minutes after the injection of 1,500 units of anti-tetanic serum, the symptoms being dyspnœa, vomiting, and collapse. Post-mortem—"everything found normal." This is the only case of which record can be found in over 100,000 injections of "A.T.S." in the A.I.F. during the war.

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should not be sutured, and in September the senior consulting surgeon, M.E.F., found it necessary to repeat that instruction. The danger of the tourniquet and the superior efficacy, in most forms of hæmorrhage, of "direct action" by plugging and pressure on the wound was a discovery made gradually. The introduction early in the campaign of the "shell dressing"[34] marked what was almost an epoch in first-aid. No problem in first-aid was more difficult than that presented by fractures of the femur, and no surgical treatment was more tragically futile than that in use. Comparatively few of these terrible cases reached the base alive on the deadly "long Liston" splint then in vogue.[35] Thomas splints were not at this time supplied for field use. The principle embodied therein was, however, at times applied by regimental medical officers by extension from each end of the stretcher.

Surgery on board ships

Such of the immediate surgery as was not postponed till the base hospitals in Egypt were reached was for the most part carried out at sea in the hospital ships or "black" ships and in hospitals at Lemnos. The circumstances, therefore, under which it was done varied greatly. In the hospital ships on the one hand there was opened up a unique short cut to safety for serious cases. Of the *Guildford Castle,* for example, Lieutenant-Colonel G. A. Syme, A.A.M.C., records "we had the equivalent of a well-equipped base hospital close to the firing line."[36] Save in some of the best equipped of these, however,

[34] After the Landing, except for local mishaps, there was at no time any shortage of dressings. The magnitude of the task notably accomplished during the war by the medical supply department of the War Office can be seen (*ex pede Herculem*) from the following items supplied to Gallipoli—namely, "over 4½ million bandages, 3,711 miles of gauze, 374 tons of lint and wool, and 186,000 shell dressings." (Sir Alfred Keogh: evidence given at the Dardanelles Commission.)

[35] In *The British Medical Journal* of January 1915, there had appeared an illustrated article by Dr. Robert Jones (later Major-General Sir Robert Jones), of Liverpool, containing the advice given by him to the War Office in 1914 for splints specially adapted for field use in the war. A pregnant sentence ran as follows:—

> "Upper and lower thighs. In fractures of the thigh the Thomas knee-splint is incomparably the simplest and best. I have often fixed a fractured thigh in this splint and sent the patient home in a cab."

With strange lack of vision, this advice was applied by the War Office only by way of secondary procedure. Some of these splints were purchased privately by regimental and other officers in the A.I.F. before and during the Gallipoli campaign.

[36] An account, written by Lieut.-Col. Syme, of surgical work in this fine hospital ship appears in *The Medical Journal of Australia,* 1 April, 1916. In the same journal of 29 January, 1916, useful suggestions for "Transport of sick and wounded on ordinary troopships" are given by Major A. J. Aspinall, A.A.M.C.

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operating was restricted both by lack of opportunity and later by definite order. At the end of July the Principal Director of Medical Services was instructed by the War Office—

> to call the attention of surgeons aboard hospital ships to the necessity for limiting operations to those which are absolutely necessary. . . . Flap amputations should not be performed. Sutures should not be employed either in amputations or in deep wound. Too many operations are being performed on board ships.

Experienced surgeons were not available for all hospital ships; their staff was not large, and the rush was at times very great.[37] During the first two months much major surgery was due—in respect of time after wounding—to be done in the "black" ships, where for a time the conditions were at best difficult, at the worst dreadful. Medical officers, made responsible for serious cases in overwhelming numbers which must be held for two days or longer, found themselves between the devil of dangerous delay and a deep sea of trouble if severe operations were carried out under circumstances that made exact procedure and suitable after-treatment impossible. From the conditions of practice in Australia few "doctors" were without some operative ability; in the field ambulances—on which fell the brunt of the work in "black" ships during the first two months—were many hospital surgeons, but even for the experienced this was a harsh and violent introduction to war surgery. Though the severe forms of wound infection were infrequent, through inadequate attention and delay ordinary sepsis in severe and deep wounds was often extensive—even myiasis was not very uncommon. From the end of June onwards an increasing proportion of severe cases were carried in the hospital ships. Gradually also the "black" ships were better staffed; and, with the introduction in July of the "hospital carrier" and of supervision by surgical consultants, surgery in most vessels approached that performed in the casualty clearing stations in France at this stage of the war.

[37] The *Guildford Castle*—with 5 medical officers, 7 nursing sisters, and 38 orderlies—normally took 350 patients, but at times carried up to 520. "On some trips" (a nurse records) "work was very heavy, we did at least 20 hours a day. . . . I have found patients dead, perhaps for quite a time undiscovered, not due to neglect but because of shortness of staff. . . . What we did was just like a drop in the ocean to what should have been done."

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From the technical side the surgical work does not call for description in detail. It is not, however, without interest to note for comparison with procedure elsewhere the principles laid down for the Gallipoli campaign by the consulting surgeon, M.E.F., in connection with the "immediate" surgery recommended in certain special types of wound.

"Immediate" surgery

Abdominal wounds.—A morphia injection to be given and all food and fluid by the mouth forbidden. They bear transport badly, and should be moved as little as possible for the first few days. If they reach a hospital or hospital ship within a few hours of injury and are seen by an experienced surgeon, he may consider it wise to operate in exceptional cases but as a rule expectant treatment gives the best results.[35]

Head injuries.—Bear transport badly and should be operated on early, depressed bone being removed, the wound ascepticised and drained but not stitched.

Chest injuries . . . from gunshot wounds, unless rapidly fatal, as a rule do well and should not be interfered with. Hæmorrhage, if dangerous, tapped by a trochar; incision and drainage if it repeatedly collects.

Amputations should be rarely resorted to unless the limb is smashed up.

Those surgeons with No. 3 Australian General Hospital who had seen service in France found that their experience at that seat of war was in some degree misleading, in that at the Dardanelles not all wounds demanded, as in France, opening up and drainage.

Speaking generally, it is probable that after the end of August the conditions on the lines of communication from Gallipoli were, for all cases, as good as on the French front at this time; for the slightly wounded throughout the campaign they were better.

At the base, the vast majority of seriously wounded Australians went to the British hospitals at Alexandria. Almost all the major "secondary surgery" and much "primary surgery" in connection with the Australian wounded was carried out in these units. No records are available of their work: but evidence makes it clear that, from June onwards, a high standard was

At Base

[35] Even Gallipoli experience was in some instances at variance with this advice. An Australian surgeon working on hospital ships assessed his successful immediate sections at 33 per cent.

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maintained under the direction of eminent British consultants. After May only slight cases were sent to the Australian general hospitals in Cairo, and in these the mortality rate was 0.75 per cent: the average for all Australian wounded being 6.8 per cent. After passing through Egypt the greater proportion of serious cases, when convalescent, and all those requiring reparative surgery, were invalided to England or Australia.

The following table shows the total woundings recorded, in the admission and discharge books reaching the Medical Research Committee, as having occurred in the A.I.F. during 1915. They represent battle-casualties that reached the field ambulances or other medical units. The number of "wounded" may be taken as correct to within 5 per cent; that of deaths from wounds in medical units to within 10 per cent.

Region of body.	Total wounds and accidents.	Total died from wounds in medical units.	Mortality rate per cent.
Head (including scalp) ..	2,120	381	17.9
Face	1,346	76	5.6
Neck	398	28	7.0
Chest	1,104	159	14.4
Abdomen (all)[39]	736	287	38.9
Perineum[40]	90	9	10.0
Back	1,367	107	7.8
Upper extremities	6,323	122	1.9
Lower extremities	7,663	302	3.9
Unclassified[41]	433	..	..
	21,580	1,471	6.8

[39] The exact nature of the injury is recorded in only 414 of these, out of which number 205 are entered as "injury of abdominal wall."

[40] Including bladder and rectum.

[41] The occurrence as a complication of sepsis and other forms of wound infection was not recorded with sufficient frequency to permit of statistical presentation even as an approximation. It is recorded by Colonel F. D. Bird, R.A.M.C.T., whose experience of hospital ship work in the Dardanelles was unrivalled, that while rare at first there was an increasing number of cases of rapidly spreading gangrene with gas formation and rapid death. It was seen chiefly in ragged and dirty wounds but not confined to such. Its onset was presaged by a peculiar smell. A general order was issued in October that such cases should be isolated on hospital ships and transports. Radical removal of dead and injured tissue became a practice in the immediate surgical treatment of all wounds.

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CHAPTER XXII

EGYPT: REORGANISATION OF THE A.I.F.

ON their return to Egypt the Australian formations were sent to the Suez Canal zone and helped to form there a new defensive front for Egypt. Simultaneously with this service the force was reorganised: the infantry into five divisions, forming, with the New Zealand Division, two army corps destined for the Western Front; the light horse into the Anzac Mounted Division and other mounted units which became part of a British force which fought for the rest of the war in Egypt, Sinai, and Palestine. The self-government of the force in all matters of internal administration was established, though not yet entirely recognised by all the authorities that dealt with it; in the medical service the new director, his powers being now confirmed by the Commonwealth Government but not fully admitted by the War Office, collected the new medical staff of the A.I.F., hastened clearance to Australia, finalised reforms in the dental and nursing services, and carried out in the A.A.M.C. units a reorganisation, which embodied several experiments of interest.

* * *

Return to Egypt

The closing of the Gallipoli campaign opened for the A.I.F. a new phase in its history, with service in a much wider and more diversified sphere of action. The next three months were occupied in a complete reconstruction and reorganisation of the force, carried out while the troops were taking their part in the dispositions for the new strategic situation. The *mise-en-scène* of the reorganisation was the neighbourhood of the Suez Canal. Hither the Gallipoli troops were transferred. The 8th Infantry Brigade, with the 2nd Casualty Clearing Station,[1] was already established at "Ferry Post" near Ismailia, and, as they arrived from Lemnos, the units of

[1] *See p. 519.*

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the two Australian infantry divisions were concentrated in the fine military camp recently constructed at Tel el Kebir for the outgoing Indian divisions now proceeding to India and Mesopotamia. Here, on the edge of the desert, within sight of the historic battlefield, roads had been formed, water laid on from sub-artesian wells, and a sanitary system installed. The New Zealand and Australian Division assembled at "Moascar," near Ismailia, and here, on January 4th, Anzac Corps Headquarters was also established under Lieutenant-General Godley. - The light horse rejoined their remounts in their old camps at Maadi, Heliopolis, and Zeitoun, where, at the last named, in the Australian and New Zealand Training Dépôt, were now accumulated some 40,000 Australian unallotted reinforcements and recovered convalescents. The 1st Australian Division at Tel el Kebir was now rejoined by its transport from Mex camp,[2] and units were brought to strength from reinforcements and men who had recovered.

Sanitation of camps

With No. 2 Australian Casualty Clearing Station there had arrived in Egypt, as a line-of-communication unit for the 2nd Division, an Australian sanitary section ("No. 1"). Authority was obtained by Colonel Howse as D.D.M.S., A. and N.Z. Corps, for another section ("No. 2")[3] to be at once formed in Egypt for the 1st Division, and, "in view of the proved value of such a unit on the Peninsula," for both to be made divisional instead of army troops.

The sanitation of the two camps was carried out under the direction of the A.D.M.S., Sanitary for Egypt, and the general supervision of the Medical Advisory Committee. There had been initiated a fly-proof pan system with incineration, carried out by native labourers. The prevalence of relapsing fever among the latter, and the endemicity of typhus in Egypt, made the delousing of the force a pressing concern. This process, however, could not, for the moment, be efficiently carried out, being quite beyond the capacity of

[2] During its nine months at Alexandria 20 horse waggons of field ambulances of the 1st Division handled, under orders of the Embarkation Medical Officer, 13,000 sick and wounded, and in doing so travelled over 2,000 miles.

[3] Following the British War Establishments laid down in "Part VII., New Armies," these consisted of one officer and 25 other ranks.

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the sanitary sections working with "Serbian barrels" and one "thresh disinfector" for each division.[4] The only other element of importance in the health state at this time was an increased incidence of cerebro-spinal fever, of which twenty-five cases occurred in the two camps during the month.

Heavy dental task

Pending the arrival of the line-of-communication units from Lemnos, cases of serious sickness and of venereal disease were sent to Cairo by "No. 4" ambulance train, which had been handed over by the Egyptian authorities to serve the Australian requirements and manned by an Australian medical staff. During the next two months twenty-one dental sections set to work on the Augean task of cleaning up the accumulations of dental decay. Branches of the Australian Base Dépôt of Medical Stores were established at Tel el Kebir and Ismailia, where the Australian Red Cross Society, now possessing its own staff and transport, also formed centres. On January 29th No. 2 Stationary Hospital arrived from Lemnos and opened at Tel el Kebir with 400 beds.

Defence of the Canal

With the evacuation of Gallipoli 250,000 Turks had been set free for an attack on Egypt, the defence of which became at once a matter of urgent concern. The M.E.F. was transferred to Egypt, and Sir Archibald Murray (who had replaced General Sir Charles Monro) was placed in command of the "Canal Defences," his jurisdiction extending five miles west of the Suez Canal. A defensive line was being formed east of that waterway.

During the last week in January the 1st and 2nd Divisions entrained to the Canal, and, crossing at Ferry Post and Serapeum respectively, "route marched" to the line of low sand-hills nine miles from the Canal in the Sinai Desert and occupied the "Central Sector" of the new defensive front for Egypt. Already from Serapeum and Ferry Post light railways and roads, built by Egyptian labour, were bridging the shifting sands of the lines of communication; and the "pipe-line" brought daily nearer from the sweet-water canal

[4] At Moascar the New Zealand engineers constructed fine baths and a "delousing" establishment with laundry.

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67. No. 2 Australian Stationary Hospital at Tel el Kebir, Egypt, 1916

The tent in the foreground is the type known as "hospital marquee, small."

Lent by Sister E. G. Dobson, A.A.N.S.
Aust. War Memorial Collection No. C352.

68. No. 3 Australian General Hospital, Abbassia Barracks, Egypt, early in 1916

Taken by L/Cpl. A. W. Savage, No. 3 A.G.H.
Aust. War Memorial Collection No. J1637.

To face p. 474.

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69. Colonel C. C. Manifold, I.M.S.
Deputy-Director of Medical Services, I Anzac Corps, February 1916 to April 1918.

Photo. by Swaine, Southsea, England.

70. Colonel R. E. Roth, A.A.M.C.
Deputy-Director of Medical Services, II Anzac Corps, 1916.

Lent by the Australian Medical Publishing Company.

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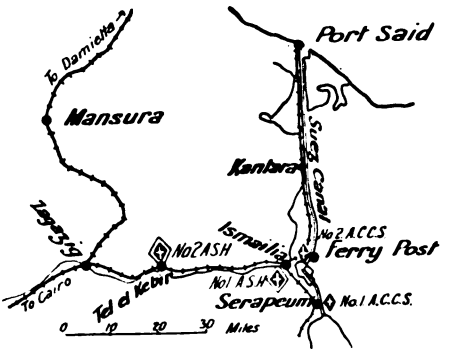
the water of the Nile, treated by sand filtration and chlorination to purify it from the varied pollutions of Egypt. Here, in perfect weather, and under health conditions unsurpassed in the history of the A.I.F., the 1st and 2nd Divisions recreated the trenches of Gallipoli, reaching in the process a very high standard of fitness. On March 1st only one patient was evacuated from the 1st Division and six from the 2nd.



Pending the arrival of the road and railway, the tent divisions behind the lines exploited for the first time the camel "cacolet" and the sand-cart, clearing to casualty clearing stations at Ferry Post and Serapeum, where on January 29th the 1st A.C.C.S. had opened on the banks of the Canal. From those points serious cases went to Ismailia by ambulance-waggon and hospital-barge respectively. Here on February 1st No. 1 Stationary Hospital formed in a French nunnery a fine hospital of 400 beds, clearing to Cairo by the "Australian" ambulance train.

The four weeks occupied in these movements in the field formations were a period of great administrative activity and were marked by momentous decisions in which the Australian medical service was intimately concerned. The reorganisation of the force under General Birdwood (who on his return resumed his position with the temporary title of "G.O.C., Australian and New Zealand Forces") was associated with the deliberate facing of the question of the status of the A.I.F. in matters not only of administration for maintenance, but also of command for active service, within the military forces of Great Britain. The Gallipoli campaign had caused a break in the internal development of the A.I.F., but a break which greatly influenced the nature and

An "Australian Imperial Force"

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direction of its subsequent progress to self-government. For better or for worse the spirit of nationalism had entered the Australian people and directed the reorganisation of their force in all its branches and services. There could now be no question of the piecemeal absorption of any part of the A.I.F. into the British Army. Though, in respect of the higher command and administration officered almost entirely by British regular soldiers, and dependent to a great extent on Great Britain for arms and even for services other than combatant and front-line units, the force that was organised in the headquarters at Ismailia and Cairo and assembled and trained in the camp at Tel el Kebir and in the Sinai Desert, was a purely Australian one, already with marked characteristics of its own. It is not possible, nor is it necessary, to follow the course of the negotiations[5] that led to the separation of the Australian force from that of New Zealand and the evolution of the administrative system whereby complete internal self-government was associated with full subordination to British command for service. This evolution, which extends beyond the period under review, was achieved by the identification of a fighting command with administrative direction, embodied in General Birdwood, with a two-fold staff—(1) fighting headquarters of the I Anzac Corps, and (2) administrative headquarters of the Australian Imperial Force in the field and at the base. The Australian Intermediate Base Dépôt became "A.I.F. Headquarters" overseas, its commandant being now made responsible, under the G.O.C., A.I.F., for the training of all reinforcements and details and for the administration of all details and units other than field formations. A.I.F. administration was represented in the field by the A.A.G., A.I.F., at corps headquarters and his small staff. The New Zealanders became similarly differentiated under General Godley.[6]

Before proceeding to an account of the reorganisation of the force, it is necessary to describe briefly the formation and early activities of the new A.I.F. medical headquarters. The new—provisional—Director of Medical Services for the

[5] *See Official History of Australia in the War, Vol. III, chaps. i, ii, and vi.*

[6] During the preoccupation of General Birdwood and his chief-of-staff in the reorganisation of the A.I.F., General Godley retained the command of the Anzac Corps and signed A.I.F. orders.

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A.I.F., Surgeon-General Howse, arrived from Lemnos on December 28th. He found himself in a very anomalous position—chiefly through the fact that the A.I.F. was not as yet organised as an administrative entity. He was still D.D.M.S., Anzac Corps: his A.I.F. position had as yet the authority only of a notification of his appointment by the D.G.M.S. for Australia. Further, he had been gazetted by the War Office (on December 7th, to date from November 22nd) temporary Surgeon-General, and appointed to the staff of the P.D.M.S., Surgeon-General Babtie, "to assist him in administering the Australian service." After arrival in Egypt, therefore, he reported to that officer. The position that he found awaiting him was, however, of such a nature that, in his opinion, his acceptance of the appointment would lead inevitably to the administrative absorption of the Australian service in the British. He therefore demurred at taking up the duties, pending confirmation of the appointment by the Commonwealth Government; and in the meantime with the concurrence of the G.O.C., A.I.F. (at this time Major-General Godley who held the position in virtue of his temporary command of the Anzac Corps), he took up duty in the medical section of the Australian Intermediate Base Dépôt, with a somewhat undefined status but an authority that was recognised by the Australian administration in Egypt. From this office, under the D.M.S. for the Force in Egypt, with the provisional staff appointed by the acting D.G.M.S., Australia, he gradually assumed control of the Australian base units in Egypt. In addition, as D.D.M.S. of the Anzac Corps, under the D.M.S., M.E.F., he directed the medical arrangements of the Australian formations on the Canal.

Instalment of new D.M.S., A.I.F.

The large headquarters staff authorised by the acting D.G.M.S., Australia, was reduced to three assistant-directors and a matron-in-chief, with a staff of six clerks. Into this headquarters the "Staff Officer, A.I.F.," was absorbed, and continued to perform the same duties, the position of "S.M.O., A.I.F.," lapsing automatically. A consulting physician and a consulting surgeon formed a permanent

Medical headquarters for A.I.F.

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invaliding board.[7] The essential feature of the new régime was that, in place of the vague and ineffective direction by an unsupported, isolated, and somewhat inactive officer which had resulted in chaos, the A.I.F. acquired a well-organised administrative department, directed by a vigorous and resourceful personality towards clear and definite ends, backed by military command which had been chastened by unhappy experience to a lively appreciation of the importance of an efficient medical service, and possessing to an unwonted degree the confidence of the combatant side, a confidence begotten of a joint experience in facing unusual problems under unusual circumstances.

The duties of the new D.M.S. were not defined by any order. Those laid down for Surgeon-General Williams had, by assuming a scope of responsibility proper to an expeditionary force, hindered rather than helped the solution of the problem. Practically, the scope of the department was gradually evolved by a process of "peaceful penetration,"[8] which took the form of a tentative assumption of responsibilities hitherto assumed by the two British directors in Egypt. The War Office persistently clung to the theory that there were two Australian administrative medical officers (deputy-directors) of equal status in Egypt and England respectively, the latter being under the Director-General at the War Office, and the former under his representative in the East, Surgeon-General Babtie. Whatever may have been the case afterwards, it cannot be questioned that at the present juncture such an arrangement would have resulted in an impasse. It was adroitly escaped by the Australian director, who took the earliest opportunity of making clear to the High

Difference with War Office

[7] The officers appointed to the several posts were—
A.D.M.S. 1: Lt.-Col. R. J. Millard.
A.D.M.S. 2: Major T. E. V. Hurley.
A.D.M.S. 3: Captain D. S. Mackenzie.
Matron-in-Chief: Miss E. A. Conyers.
Consulting Physician: Colonel H. C. Maudsley.
Consulting Surgeon: Colonel C. S. Ryan.

The confirmation of these appointments and that of Col. Howse as D.M.S., A.I.F., was given by the Commonwealth Defence department at the end of January, and they were gazetted to date from Dec. 1, except that of the Matron-in-Chief, which was dated Jan. 12. Confirmation by the War Office of the appointment of a D.M.S., A.I.F., was, however, delayed. This matter receives further consideration in *Vol. II.*

[8] Described by one concerned as "alternate bullying and cajolery."

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Commissioner in England, and to the Australian D.D.M.S. there (General Williams), that there was now one director of the internal affairs of the A.A.M.C., A.I.F.

The grounds on which the appointment of a new D.M.S., A.I.F., had been urged included the effective direction of the medical service at the base, and the tightening-up of the disposal of Australian convalescents in the interest both of the field force and of Commonwealth finance. In pursuing these purposes the D.M.S. relied on the application of a new driving power to existing machinery. The occasional interventions of the D.M.S. for the Force in Egypt and the somewhat vague "assistance" of the P.M.O., Cairo, were replaced by a firm, if at first somewhat inexperienced, direction.

Vigorous action by D.M.S.

The special establishments drawn up by the acting D.G.M.S., Australia, for the auxiliaries and convalescent dépôts were confirmed, and the activities of each closely supervised. The infectious disease hospital at Abbassia (No. 4 Auxiliary) was expanded from special staff. A special unit from Australia took over the venereal detention barracks. Mena House was closed, and the concentration camp at Suez was replaced by No. 2 Auxiliary as a dépôt for invalids awaiting return to Australia. With these steps was associated a general speeding-up of the system of embarkation; for which machinery already existed in the fine organisation built up during 1915.[9]

A survey by the "flying board" for Australian convalescents in Egypt was already in progress, and, of 4,000 passed under review, 1,392 were selected by the D.M.S., A.I.F., for immediate return to Australia. Their clearance was expedited by the arrival of the two Australian hospital ships, and of the transports proceeding to Australia for the 3rd Division. Under order of the Egyptian Command—based on the advice of the Medical Advisory Committee—358 convalescent enterics were sent to Australia, but upon evidence adduced by the chief bacteriologist, A.I.F., this

Clearance of invalids

[9] Thus on January 21 three vessels were notified by the Australian naval transport officer as available: on the 25th the *Suffolk* was selected, and on the 29th she sailed with 315 invalids. The Australian embarkation medical officer inspected and prepared the selected transports at Port Said, and thus saved demurrage and delay at Suez; invalids proceeded directed from Cairo to their berths in the transport (*p. 410*).

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unnecessary provision was thereafter relaxed and the enteric dépôt at Port Said closed. The disposal of the troublesome "B" class of temporarily or partly unfit was now clearly laid down. Such classification could henceforth be made only by a medical board and approved by the D.M.S., A.I.F. Approved "permanent 'B' Class" men might be employed at the base and also transferred to the medical service in view of its deficiency in personnel.[10]

Dental and Nursing Services

To none of the various branches of the Australian Army Medical Corps did unified control bring greater benefit than to the nursing service. It may almost be said that the nursing service of the A.I.F. was created by the appointment of a responsible head, the matron-in-chief (Miss Conyers) on the staff of the Australian D.M.S. The dental service found in the new D.M.S. a chief who shared their belief in the potentialities of this speciality as a branch of reparative surgery and preventive medicine. New dental units were formed and equipped as rapidly as men and material could be found. Whereas at the end of 1915 there were only twelve dental officers, by April, 1916, thirty-six dental units were at work, of which twenty-five had been equipped locally from the dental section of the Australian Base Dépôt of Medical Stores, now in charge of a dental quartermaster.[11]

Store Depot "established"

The Base Dépôt of Medical Stores received an "establishment" and was constituted on a permanent basis.

Reorganisation of A.I.F.

During this time there was proceeding a reconstruction which doubled the formations constituting the field force, and to this attention must now be directed. Near the end of 1915, under circumstances to be related,[12] Australia had decided to form three new divisions. On January 21st Sir Archibald Murray, on the advice of the G.O.C., A.I.F., reported to the War Office concerning Australian reinforcements in Egypt that "for reasons of training and discipline" it was "essential that these

[10] This deficiency had been brought about by the policy of "special reinforcements" (now locked up in the auxiliaries) and by the small percentage of regular reinforcements for the medical service.

[11] A shortage of plaster of Paris was met by organising local manufacture from deposits of gypsum in Egypt.

[12] *p.* 515.

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be formed into definite units." On February 2nd the Australian Government agreed that two divisions should be formed in Egypt and one (the 3rd) in Australia. There would then be two army corps, I and II Anzac. This duplication of the Anzac Corps was accomplished by a process akin to that whereby a hive of bees forms new colonies. The first "migration" was that of the New Zealand Infantry Brigade, which, with a "rifle" brigade from New Zealand and another infantry brigade created locally from reinforcements, formed a New Zealand division. Somewhat later the light horse brigades, with the New Zealand mounted rifles, formed an Anzac mounted division.

In order to form the two new Australian infantry divisions with the greatest possible speed and the least delay in training, the expedient was adopted of dividing each unit of the 1st Division and of the 4th Brigade into two parts, of which one remained as the original unit, being brought to strength by absorption of reinforcements and of recovered casualties accumulated in Egypt or sent in drafts from England.[13] The remaining halves became four skeleton brigades, which, reinforced from the training battalions, and combined with the reorganised 4th and the new 8th Brigades, formed two "provisional formations," each containing the elements of a division, with the officer commanding No. 2 Australian Stationary Hospital, Lieutenant-Colonel Barber—a keen sanitarian—as "S.M.O." These formed the nuclei of the two new divisions. The actual reconstruction began with the formation on February 11th of a second "Anzac" Corps.[14] The units of the new formation, marching in from the Canal defences, assembled at Tel el Kebir and were there joined by their reinforcements. Training commenced with vigour, and the camp became another "Mena," though less strenuous and far more healthy.

[13] On 1 January, 1916, some 23,500 Australian recovered and recovering casualties were in hospitals or dépôts—in England 11,000, in Egypt 10,066 (including over 3,000 at the Australian Overseas Base, Ghezireh), in Malta 2,273, at Mudros 135, at Gibraltar 15.

[14] To this formation Colonel Reuter Roth, A.A.M.C., was appointed D.D.M.S. By the wish of General Birdwood, Colonel C. C. Manifold, I.M.S., was appointed to a similar position in the I Anzac Corps.

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Formation of the new medical units

In the reorganisation of the medical service regimental establishments were divided along with their units. For the field ambulances, however, at the request of the D.M.S., A.I.F., and with the approval of the D.G.M.S., Australia, it was arranged that the infantry units, like those of the light horse, should consist of two instead of three sections, with the addition of thirty-six bearers and three officers. This policy was put into effect by separating the "C" sections from the eight existing units. From these sections four new units were constructed, making, with the "A" and "B" sections of the 4th and 8th, the six required.[15] Sanitary sections (4th and 5th) were formed for each "provisional formation." For the many new appointments,[16] postings, and promotions the D.M.S., A.I.F., obtained authority for the policy (promised by General Bridges but interrupted by Gallipoli) that the medical corps should form the "unit" for promotion and posting in the medical service of the A.I.F., and that, in all appointments to field formations, officers who had served at Gallipoli should be given preference. On February 25th the provisional formations became the 4th and 5th Divisions.[17]

The move to France

On February 29th General Birdwood received warning that the Australian force "would be required to begin to move to France within two weeks." The events leading to this notice must be briefly related. On February 16th was fought

[15] Field ambulances were finally distributed as follows:—
1st Division—1st, 2nd, and 3rd.
2nd Division—5th, 6th, and 7th.
3rd Division—9th, 10th, and 11th.
4th Division—4th, 12th, and 13th.
5th Division—8th, 14th, and 15th.
These numbers corresponded with those of the infantry brigades.

[16] A.D's.M.S. were appointed as follows:—
1st Division—Col. A. H. Sturdee.
2nd Division—Col. A. Sutton.
3rd Division—Col. A. T. White.
4th Division—Col. G. W. Barber.
5th Division—Col. C. H. W. Hardy.
Anzac Mtd. Div.—Col. R. M. Downes.

[17] From February 1 all medical reinforcements from overseas went, by an A.I.F. order, to the details camp at Zeitoun instead of being attached to the general hospitals pending allotment. Some 500 "B" class combatants were transferred to complete the number required.

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the Battle of Erzerum, where Russia, by defeating the Turks, again gave her allies a badly-needed respite and set free the "strategic reserve" in Egypt to meet the crisis developing in Europe. Thus again it was to a certain extent the action of Russia that determined the destination of the A.I.F.—this time westward. On February 21st the Germans attacked Verdun, and six British Divisions, including two Australian, were ordered at once to France. All activities were now directed to preparation for the move of the I Anzac Corps (then the 1st and 2nd Australian Divisions and the New Zealand Division), command of which was now resumed by General Birdwood. The 4th and 5th Divisions were to follow later as the II Anzac Corps under General Godley. Question was made by the D.M.S., A.I.F., as to the raising of casualty clearing stations for these new divisions. After consultation with the War Office the G.O.C., A.I.F., decided that, since the force would operate in a seat of war of which the lines of communication were fully organised, these units were not required. Nos. 1 and 2 General Hospitals were, however, to go to France with the formations. The consent of the Australian Government and, after some demur, of the G.O.C., M.E.F., was obtained by General Birdwood to yet another innovation in the medical establishment accompanying the divisions, this being the attachment to each field ambulance of a dental section, perhaps the most useful contribution made by Australia to medical organisation. Equipment was completed at high pressure by the Australian Base Dépôt of Medical Stores, twenty pairs of medical panniers being constructed locally in twenty-one days. The new British establishments provided that half the transport of the ambulances should be motor, but, since the Australian motor-ambulance transport section was still required in Egypt, the matter was left for adjustment in France. The 2nd and 1st Australian Divisions were in succession relieved respectively by two brigades of light horse, route-marched to the Canal, and entrained for the huge concentration camp at Moascar, there to undergo some final preparation to fit them for a place in the new force and among a European population.

Experiments in medical organisation

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Preparing for France

Notice to proceed to France was accompanied by instructions in which can be seen the influence of the sinister reputation which, in a medical respect, the Gallipoli campaign, and particularly the Australian force, had acquired in Europe. Affecting the medical service there came from General Headquarters in France, through the P.D.M.S., orders that, with a view to the elimination of infection, a "complete inspection" of the troops should be carried out, and special directions were given (with what purpose, it is difficult to say) that a "venereal inspection" was to precede embarkation in Egypt and disembarkation at Marseilles—the port from which the Australian formations would proceed to their place on the Western Front.

Except for the detection of skin disease, however, a "medical inspection" as the means of eliminating potential sources of contagion from a large force—especially one that had come into contact with so varied a pathological fauna and flora as had the Australian—must have proved a futile procedure. Freedom from infectiveness can be secured only by an effectively organised and controlled routine system of preventive measures calculated to minimise the incidence of incubating cases and carriers. Such a system, fortunately, was now in operation in the camps in Egypt, whither—save for the moiety sent to Macedonia—the galaxy of talent assembled for Gallipoli had transferred their attention. At no time in its history was the A.I.F. more closely supervised in this respect. Measures of prevention both direct and indirect were effectively organised and strictly controlled.[18]

New era in "sanitation"

Space will not permit of an account of the new developments, initiating for the A.I.F. a new era, in camp sanitation. The explanation of the healthiness[19] of the Australian troops at this time, which offers a remarkable contrast, except in the one respect of venereal disease, to the condition of the

[18] In addition to actual inspection and report to the D.M.S. for Egypt or M.E.F., or the formations concerned, the Medical Advisory Committee and Entomological Commission exercised a high educational influence. The demonstration of sanitary methods and exhibit of models near Ismailia, by officers of the I.M.S., were visited by a large proportion of Australian medical officers and sanitary personnel.

[19] Unfortunately it is impossible, except in a few specific instances, to give figures for this period, because of the destruction of Australian statistical records for 1916 and onwards.

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first force during the corresponding season of the previous year, is not to be found in any single factor but in the systematic supervision now exercised over all measures for controlling transmissible disease. The camps were spaced out, the troops well fed, and not overcrowded; fly infection was minimised, cleanliness of person promoted. It is, however, probable that, while these direct measures played their part, the most important factor was the provision made for stamping out foci of infection by prompt evacuation of all cases, control of contacts, and search for carriers. A bacteriological laboratory, arranged in a railway carriage by the D.M.S., M.E.F., was the forerunner of even more mobile methods of ensuring prompt diagnosis, a task in which the Australian medical service became very directly concerned.[20] From January onwards routine bacteriological work for the A.I.F. was carried out under the direction of the senior bacteriologist, A.I.F.[21]

Changes in disease picture

As regards inspiratory infections, the place taken in 1914-15 by pneumonia was now largely occupied by cerebro-spinal fever, carriers of infection being for the most part brought by transports from camps in Australia. Mumps took the place of measles. Gastro-intestinal infections were not conspicuous, though enteric was much more prevalent than in the preceding year. The menace from the endemic insect-borne diseases of Egypt was the subject of strict appropriate procedures and the results were satisfactory. Stringent orders were issued regarding bilharzia[22] and relapsing fever. The force was effectively protected against small-pox. Ophthalmia did not become prevalent.

Venereal disease

Of all diseases occurring in camps, with the possible exception of mumps, venereal infections were again the most difficult to prevent, the most troublesome to treat, and the most productive of absence

[20] *See p. 637.*

[21] Lieut.-Col. A. H. Tebbutt, and later Lieut.-Col. C. J. Martin. Hitherto the great bulk of the work was carried out in the Cairo Central Laboratory under Dr. C. Todd, to whom the Australian medical service was greatly indebted. The Australian Dermatological Hospital (*see p. 519*) was self-contained in respect of laboratory investigation.

[22] Though bathing in the Nile waters was prohibited, a number of cases that remained infective in Australia till the advent in 1919 of treatment by antimony tartrate were contracted from the infested "sweet-water canal" at Tel el Kebir, chiefly when the troops were watering horses.

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from duty.[23] The number of cases constantly under treatment in the Abbassia Detention Barracks rose from 183 in October to 607 in January, 1,187 in February, and 1,493 in March. The average period spent in hospital being thirty-five days, these figures represent approximately the number admitted monthly. By far the greater proportion of them were from the training dépôt. In these diseases, contagion being from without, isolation of cases and carriers could not affect their incidence. Of the means taken to abate the violence of attraction toward sources of infection—such as moral suasion, counter-attractions, fear, and stoppage of pay—the only one fully effective was distance from the sphere of influence.[24] In the middle of March the D.M.S., A.I.F., found himself compelled to inform the corps commander that drastic steps must be taken to deal with the situation, "over 2,000 cases" being then under treatment. Leave from the Canal to Cairo was stopped, and the training dépôt was moved to Tel el Kebir. These steps resulted in the number dropping in April to 914.

At the end of January the improvised unit which had in October replaced the scratch staff that at first supervised the self-treatment of these cases was itself replaced by a fully-equipped and well-staffed scientific technical unit. The "Australian Dermatological Hospital" took up duty at the end of January, the two senior officers being sent on to Europe to study the methods in vogue. Hereafter venereal disease was treated with the same scientific accuracy as any other, and, except for the "moral" stigma, and military stoppage of pay as punishment for wilfully contracted disease, was on the same plane as scabies or scarlatina.

The most important medical procedure in preparation for the move to France was a complete compulsory inoculation

[23] During the year which ended in February, 1916, beginning with the concentration of all Australian cases in the isolation hospital at the old Detention Barracks, Abbassia, 8,858 cases were treated there, of whom 5,924 were Australian, 1,979 British, and 955 New Zealand, the average stay in hospital (taking all types of case) being 35 days. Of these 1,344 were returned to Australia. The incidence per 1,000 of troops can be seen in graph No. 6, at *p. 466*.

[24] The Australian Y.M.C.A. and the Australian branch of the B.R.C.S. co-operated in running soldiers' clubs, etc., in Cairo, Alexandria, and elsewhere. Meanwhile an organised system of personal prophylaxis was developed by the medical service for the careless or uncontrollable.

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of the whole force with T.A.B. vaccine,[25] of which the advance supplies from England were made available for the Australian force. Except in cerebro-spinal fever and enteric, a search for bacillary carriers was not a practicable procedure. In those diseases, however, in which hospitality to the infective agents of disease was shared by the troops with camp followers in the form of insect pests, the problem became amenable to a campaign. For so large a force wholesale methods were needed, and fortunately were available through the experience of the Medical Advisory Committee in Serbia. A "delousing train" was fitted up under the direction of its originator (Colonel W. Hunter, R.A.M.C.T.), and by means of this the divisions were practically freed from vermin with no delay to their onward movement.[26]

T.A.B. inoculation

Units of the I Anzac Corps began to embark on March 14th, and, with the 2nd Division in advance, the whole corps had by the 30th left Egypt. A "divisional base dépôt" accompanied each division, taking ten per cent infantry reinforcements and seven per cent "extra medical personnel per field ambulance." Drafts from England were now stopped. The 1st and 2nd Casualty Clearing Stations followed the field formations; corps headquarters and the department of the A.A.G., A.I.F., left on March 30th. Before leaving for France, General Birdwood authorised General Godley to exercise in Egypt the "powers of the G.O.C., A.I.F.," conferred on him by the Commonwealth Government. Coincident with these moves, certain initial steps were taken to close up the Australian base hospital system in Egypt—except so far as it should be required for the light horse—and in general to disentangle the mounted and unmounted parts of the Australian Imperial Force and at the same time provide for continuity of policy and a unified command. The closing of the base hospitals was greatly helped by the opening of No. 3 General Hospital in the

Departure of infantry

Australian hospitals in Egypt closed

[25] Typhoid 500 millions, paratyphoid "A" and "B" 375 millions each of killed bacilli.

[26] Colonel Hunter records: "In three months two double-van disinfectors carried out the disinfection of 170,000 kits, 170,000 overcoats, 340,000 blankets, and a great mass of ordnance clothing. 60,000 troops and native Labour Corps had their clothing disinfected monthly."

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Egyptian Army Barracks, Abbassia, a huge building selected by the acting D.G.M.S., Australia, while in Egypt.[27] Fitted up with the aid of the Australian Red Cross this formed one of the best Australian general hospitals organised during the war. In succession Nos. 2 and 1 General Hospitals were closed, and left for France. With No. 1 went the A.D.M.S. 2 of the medical headquarters, Lieutenant-Colonel T. E. V. Hurley, who arrived in France on March 31st under instructions "to furnish the British authorities with information concerning the A.I.F. medical units and organisation." No. 2 Auxiliary and the Australian Convalescent Dépôt, Helouan, were closed at the beginning of April, the staff being absorbed in the A.A.M.C. details.

These events practically synchronised with an important change in the system of command in Egypt. On March 19th dual control of the British forces in that region ended by the formation of the "Egyptian Expeditionary Force" under command of Sir Archibald Murray. The Levant Base having ceased to function, the P.D.M.S. returned to the United Kingdom, as also did Sir John Maxwell, commander of the Force in Egypt, and his D.M.S., Surgeon-General Ford.

"E.E.F." formed

With the departure of I Anzac Corps the full significance of the transfer to France became evident. At two important conferences[28] with the "Imperial" authorities in London the decision had been reached that the administrative headquarters of the A.I.F. and the medical base for the troops in France should be in England. A cable from Australia instructed that the new D.M.S., A.I.F., should proceed to England at once in order "to personally arrange regarding hospital accommodation." He embarked on April 19th, leaving an "A.D.M.S., A.I.F.," in Egypt to represent him. A.I.F. headquarters left for England on May 10th, leaving under the "G.O.C., A.I.F., in Egypt" a cadre to which the A.D.M.S. was attached. The II Anzac Corps (4th and 5th Divisions), after eight weeks on the "Canal Defences," followed I Anzac to France, commencing its move on June 1st and undergoing a like

The new medical dispositions

[27] The hotels were found to make bad hospitals.
[28] This matter will be referred to in *Vol. II.*

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clearance and weeding-out of unfits.[29] On General Godley's departure Major-General H. G. Chauvel, commanding the Anzac Mounted Division, was appointed G.O.C., A.I.F., in Egypt.

With the departure of the corps the "A.D.M.S., A.I.F.," in Egypt found his position difficult. The D.M.S. had left for England holding the view that Australian medical affairs in Egypt would be under his direction. Neither the British authorities, however, nor the new G.O.C., A.I.F., in Egypt, were prepared to accept the situation; which indeed presented considerable difficulties. The A.D.M.S. found his chief business—and a considerable one—in the gradual clearance of the hospital population left in Egypt.

Of 4,709 sick in hospitals in Egypt on June 1st, 1,589 had been boarded for return to Australia. Of these, from 300 to 400 had been boarded for "diseases contracted prior to enlistment." The complaints from the A.I.F. and retorts from Australia on this matter deepened at this time almost to the degree of recrimination. That there were two sides to the question is visible in the nature of the disabilities and in the divergence of views even within the A.I.F. itself.[30] The training dépôt and "medical details" followed the A.I.F. headquarters to England, together with an additional sanitary section (No. 6) organised for duty at the base. On July 29th the Base Dépôt of Medical Stores embarked for England. Early in July Nos. 1 and 3 Auxiliaries were closed and the personnel transferred to England, leaving the Australian Dermatological Hospital to follow. No. 3 Australian General Hospital at Abbassia, and Nos. 1 and 2 Stationary Hospitals on the Canal, served in the first instance the requirements of the light horse, to whom from this time onwards belongs the history of the Australian Imperial Force in Egypt.

The light horse takes over

[29] For reasons that belong elsewhere the field ambulances went with three sections. They were, however, accompanied by dental sections.

[30] After the departure of the I Anzac Corps divisional medical boards reported 548 men unfit for service. Upon these cases being reviewed by the D.D.M.S., only 346 of the previous decisions were confirmed. "The opinions of the Divisional Boards," the D.A. & Q.M.G., II Anzac, reported to the corps commander, "are apparently at variance with that of the D.D.M.S."

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CHAPTER XXIII

THE AUSTRALIAN MEDICAL SERVICE IN ENGLAND, 1915

THE arrival in England during 1915 of large numbers of the sick and wounded of Australia and of the other British dominions, and of medical and nursing personnel sent to participate in their treatment and disposal, brought about problems in Imperial co-operation of considerable complexity. There was, however, quickly evolved a *modus vivendi* which permitted the exercise of dominion activities within, but in some degree independent of, the organisation built up by the War Office for dealing with casualties arriving in England from overseas. Even before the A.I.F. was transferred to France there had been laid the foundations for an Australian medical overseas base in Great Britain, and the new system of the "command dépôts," with improved classification of troops "hardening" for the front, had been established.

* * *

The original plan for Imperial co-operation in the war would have taken the Australian and New Zealand contingents direct to England. There, like the Canadians and Newfoundlanders, they would have spent the winter of 1914-15 in the camps that grew up like mushrooms on Salisbury Plain and the outskirts of the adjoining New Forest, while training for a part on the Western Front. The cross currents of policy and strategy that drew them first to Egypt and thence to the intense, if brief, diversion of the Dardanelles, entailed a complete change in the medical situation. During this period, however, England was the scene of certain activities and developments, chiefly medical, in connection with the Australian force that were important in themselves, but more so as laying a foundation for the great organisation which was in the later years of the war to form the overseas base of the Australian infantry.

It must be stated by way of preface that this organization was evolved as an integral part of the general War Office

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71. A SATISFACTORY TYPE OF LATRINE, WITH FLY-PROOF SEAT AND FALLING LID ON EACH PAIL

Photographed at the Australian camp, Tel el Kebir, 1916

Aust. War Memorial Collection No. C4860.

72. INCINERATION AT TEL EL KEBIR CAMP, 1916

Aust. War Memorial Collection No. A2717.

73. SERBIAN BARREL DELOUSERS AND THRESH DISINFECTOR NEAR FERRY POST, EGYPT

For a photograph of a railway-van disinfector, see plate No. 86.

Aust. War Memorial Collection No. A2718.

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74. INOCULATION AGAINST CHOLERA IN EGYPT, 1915

Captain J. P. Fogarty, R.M.O., 21st Battalion, using the needle.

Taken by Capt. A. G. Brown, 21st Bn.
Aust. War Memorial Collection No. A752.

75. DENTISTS AT WORK AT No. 3 AUSTRALIAN GENERAL HOSPITAL, ABBASSIA, EARLY IN 1916

Taken by L/Cpl. A. W. Savage, No. 3 A.G.H.
Aust. War Memorial Collection No. J1668.

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procedure[1] for officers and men of the Regular and Territorial forces and "New Army" of Great Britain, which was modified—within limits, which receded with each successful exploitation of the possibilites of intra-Imperial reciprocity—more and more exactly to suit Australian requirements. It should be added that in its navigation of the uncharted sea on which it now embarked the Australian staff in England found in the British War Office a pilot both experienced and sympathetic.

Dominion organisation dovetails into British

During the first year of the war the military headquarters of the A.I.F. in England was housed in the office of the High Commissioner, whose position as the mouthpiece between Britain and Australia became of great importance when the sudden need arose for definition and practical trial of the Imperial ideal. His staff, in particular the military adviser and the medical officer for immigration,[2] became responsible for organising and directing not only the various unofficial efforts on behalf of the Australian sick and wounded in England, but also, under the War Office, the official medical arrangements.[3]

On his arrival in England on 15th December, 1914, in the erroneous belief that the Australian hospitals which ultimately landed in Egypt would be sent on thither, Surgeon-General Williams, as D.M.S., A.I.F., made the High Commissioner's office his headquarters. In addition to activities already noted,[4] he inspected, for the Director-General of the Army Medical Service, the "Australian Voluntary

The D.M.S., A.I.F., and the War Office

[1] Each of the self-governing dominions—Canada, Australia, New Zealand, and the Union of South Africa—evolved its own system for dealing with the sick and wounded, and these systems differed in details and even in policy. A series of "War Office letters" and "Army Council instructions" laid down from time to time the procedure for the "disposal of sick and wounded soldiers transferred home from an Expeditionary Force"; and these included special instructions which embodied both the general policy prescribed by the War Office in connection with sick and wounded soldiers other than British in Great Britain, and also the special arrangements arrived at with the War Office by each dominion in regard to its own contingents.

[2] Respectively, Lieut.-Col. P. N. Buckley, R.A.E., and Dr. W. Perrin Norris.

[3] In this capacity (it must be said) his duty of exercising discrimination and initiative, ably carried out, was at times pushed by the High Commissioner to a degree that left the War Office and the Australian Department of Defence in the dark as to each other's wishes and requirements.

[4] *See p. 66.*

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Hospital" at Boulogne,[5] and, for the Australian Government, certain places suggested as convalescent homes. An important outcome of his conversations with the D.G.A.M.S. was, as has already been mentioned, a cable from the High Commissioner intimating the "desire" of the War Office to engage 200 young Australian medical men as officers in the R.A.M.C., and, shortly afterwards, another asking for 200 nurses for service in the Q.A.I.M.N.S. The action is of interest both as an Imperial "gesture" and also as indicating the attitude of the War Office at that time on the question of the most effective form of contribution by Australia to the medical care of Empire soldiers in the war. The D.M.S., A.I.F., embarked for Egypt on January 31st, leaving arrangements to the "administrative direction" of the medical adviser to the High Commissioner.

Imperial co-operation

The provision of the War Office whereby, under a very generous financial agreement, Australian sick and wounded would be treated in British hospitals, was correlated with a tacit acceptance of responsibility by the War Office for providing adequate hospital accommodation. It chanced, however, that a patriotic Australian offered his house—Harefield Park in Middlesex—with 250 acres of land, as a "convalescent home," and this determined a line of co-operation by Australia which, with occasional divergence, became a settled policy. On the recommendation of the acting D.G.M.S., Australia, that "such a home will be almost a necessity," and on its approval by the D.M.S., A.I.F., for 150 beds in the summer and 50 in the winter, the offer was accepted, as were subsequent offers of various smaller places in and about London for officers.[6]

An Australian hospital: Harefield

At the end of March, 1915, an advance staff of five nurses with a matron of the Australian Army Nursing Service arrived from Australia, and by the middle of May had prepared eighty beds at Harefield. On April 16th the D.M.S.,

[5] This unit, formed by private munificence in September, 1914, and staffed on a voluntary basis by Australian medical officers and nurses visiting England, was among the first British hospitals in France. Its personnel, in common with other Australian medical men and nurses abroad at the outbreak of war, was precluded from joining up with the A.I.F. overseas by the policy laid down by the Commonwealth Government.

[6] No 4 Auxiliary Hospital, Digswell Place, Welwyn (4 beds).
No. 5 Auxiliary Hospital, Digswell House, Welwyn (20 beds).
No. 6 Auxiliary Hospital, Moreton Gardens, London (40 beds).

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A.I.F. (then in Egypt), being informed of the decision by Australia not to provide hospital ships, cabled through the High Commissioner for the immediate extension of convalescent homes—which would obviously be necessary if no transport was provided for invalids—to "at least 1,000."[7] On May 9th he arrived in England "to organise the extension of convalescent homes" and to arrange, if possible, for hospital ships. The extension was begun by the erection at Harefield of huts for 300, on an "auxiliary hospital" basis.[8]

For military administration Great Britain was divided into "commands," independent and self-contained under the War Office, the medical service of each being controlled by a D.D.M.S. There were at this time six "commands" in England, one in Scotland, and one in Ireland. Sick and wounded soldiers arriving at one of the ports of disembarkation (of which the chief was Southampton) were distributed, without discrimination as to nationality, from a special clearing hospital at the port, and were carried by hospital trains to the several "commands" in accordance with the accommodation available there.

Early in May the D.M.S., A.I.F., drew up a scheme for Australia's co-operation in the care of her sick and wounded which was embodied in "Standing Orders for Australian Auxiliary Hospitals in England." This proposed two groups

[7] For the negotiations at this time which led to the formation of No. 3 A.G.H., *see pp. 88-89.*

[8] The military hospital system in Great Britain, which grew from 7,000 beds before the war to 364,133 at the Armistice, was based on—

1. The regular military hospitals (Netley, Aldershot, Woolwich, etc.) scattered over the United Kingdom, which were at once expanded and augmented.

2. The general hospitals of the Territorial (militia) Force organisation, each of which expanded from 250 beds "almost indefinitely" by "affiliated" hospitals.

3. Special "war hospitals" organised from Poor Law infirmaries, asylums, etc., staffed by their own and other civilian personnel with temporary military rank, augmented from the Regular services. These became of considerable importance.

4. Civil infectious hospitals and beds in public hospitals.

5. Voluntary hospitals provided under the auspices of the British Red Cross Society and the Order of St. John of Jerusalem. These formed "a very large proportion" of the beds at the Armistice. They received Government grants according to their facilities for treatment—equal to about 70 per cent of the total cost—and were organised into two classes of "auxiliaries," "A" class being those adequately equipped and staffed to act as overflows from general hospitals, and "B" (at first called "convalescent homes") those which were suitable only for convalescents requiring little or no hospital treatment. Both classes of auxiliaries were grouped round "central" military hospitals, from which they received cases by transfer; these cases remained on the books of the central hospital, and their movements were controlled by military inspectors in conjunction with the inspector of the voluntary body concerned.

6. "Military convalescent hospitals."

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of "auxiliary" hospitals, for officers and other ranks respectively, "within easy access of London"; they were to take secondary cases both direct from hospital ships and as transfers from British hospitals. For their administration as military hospitals under the authority of the "command" in which they would be situated a commandant (A.A.M.C.) was provided for, who would "exercise command over all Australian hospitals," acting in co-operation with the medical adviser to the High Commissioner, who was concerned chiefly with accommodation and equipment. Provision was made for a staff officer (A.A.M.C.) responsible for Red Cross funds and stores, and a demand was made upon Australia for a staff for 1,000 beds and a lieutenant-colonel of the A.A.M.C. as commandant.

An Australian system within the British

At the end of May an officer and six rank and file arrived for Harefield, where on June 2nd the first eight patients were received. These were among the casualties of the Landing who had been brought to England in the middle of May by the hospital ships *Goorkha* and *Letitia* and other vessels. By the end of the month 925 such cases had arrived in England and had been dispersed throughout the United Kingdom. Some of them were now transferred to Harefield.

For the reception of Australian soldiers on discharge from hospital in the United Kingdom, "Monte Video" camp at Weymouth, in the south of England, was handed over on May 29th by the War Office as a dépôt for convalescents and invalids awaiting disposal and not requiring further treatment. A staff was drawn from convalescents, and the Agent-General for Western Australia, Sir Newton Moore, was appointed commandant, "Australian and New Zealand Base Dépôt."

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Casualties from the Landing

Through the support given by the High Commissioner and the deep impression created in Australia by the Landing, the D.M.S. obtained the Australian Defence Department's consent to his request for hospital ships; and on June 6th he re-embarked for Egypt *viâ* Malta, leaving an acting commandant—Major T. P. Dunhill, an invalided surgeon from Egypt—and the Medical Adviser to direct, under the High Commissioner, medical affairs in England in his absence. By this time the overflow from the Landing, augmented by invalids from Malta and Egypt, was reaching the British convalescent hospitals and was passing thence to the stage of discharge and furlough, and it was arranged with the War Office that at this stage Australian patients should become a direct responsibility of the staff of the High Commissioner, who undertook to arrange for their final disposal. . Knotty problems arose in connection with each of the stages here mentioned.

By the end of June 1,500 Australian sick and wounded had arrived in England. Harefield by now held 300, and would shortly be able to take 500 more; 267 were in Weymouth; the rest were scattered through the British hospitals or on furlough. While under active treatment in the central hospitals, a sick or wounded Australian was one with the other soldiers of the Empire, dependent for his treatment on the medical and nursing professions, military and civil, of Great Britain. The stage of convalescence brought him directly within the responsibility of the High Commissioner, not only for disposal after discharge but in some respects for care and comfort. It was here that the craving for companionship and home associations was naturally great; moreover, the Australian soldier felt, much more than the British, the irksomeness of restraint and lack of pay.[9] From an early date, therefore, the concentration of Australians near London, so as to permit of effective oversight by the staff of the High Commissioner, became an important, though a very difficult, matter.[10]

[9] No pay was allowed while a man was in British hospitals in England.

[10] "We discovered Australian wounded soldiers in 82 of the 100 Auxiliary Hospitals attached to the 2nd Western General (Territorial) Hospital in Manchester —an index of what was happening all over the country." (From a report by the acting Commandant, Australian Auxiliary Hospitals.)

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Developments in British system of convalescence

The medical organisation in Great Britain was then in the throes of rapid evolution under compulsion of the urgent needs of the military situation. In Great Britain, as in Australia, the principle of voluntary enlistment had the force of a religion. For that principle the British people fought to the extreme limit of safety, in spite of the compulsion of a war to the death against a conscripted enemy, and of an utterly unexpected failure of a large proportion of the population to satisfy the physical standard of "A Class" for the purposes of war. At this time, under a reorganised system of medical examination, "travelling medical boards" were raking-over and categorising the recruits in order to find sufficient effectives for the "New Army" and to fill the ancillary services. In respect also of the cognate and equally pressing problem of making good the unprecedented wastage at the front by rapid "return to duty" of recovered men, there had been a growing realisation of the fact that advance in the efficiency of the procedure depended largely on the medical service. This had led to the introduction of a new form of convalescent establishment. To fill a gap between the medical "convalescent homes" and the regimental "reserve battalions" or "dépôts" of the British military system, "military convalescent hospitals" were being formed.[11] These received from the military hospitals "cases likely to be well within six weeks," with the object of "fitting the convalescent for service without unnecessary delay." To meet Australian requirements in the matter of convalescence, and to promote concentration for care and control, the War Office made available a self-contained section of ten huts, with forty-eight beds in each, in one such hospital at Woodcote Park, Epsom. The Australian staff, which was cabled for, was to be under the British commanding officer. Cases were admitted on July 2nd, at first under a British staff.[12]

Harefield by now had reached 500 beds. The medical adviser reported that the growing requirements of secondary

[11] The first in April, 1915.

[12] These units were commanded by a medical officer who exercised "full military command" over patients as well as personnel, officers and other ranks alike, "including the power of punishment."

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surgery and the need for special forms of treatment had made this unit "more like a general hospital," and at his instance it was suggested to the War Office and to the Australian Defence Department that for administrative purposes it should be classed as such. Though no steps were taken at the moment, it was divided into "convalescent" and "auxiliary" sides. At the end of June arrangements were made whereby on discharge[13] from hospital all Australians reported to the High Commissioner for furlough, for which a special department was organised, together with a regular system of medical examination and reclassification to determine their disposal.

and in the Australian

On July 9th the Australian D.M.S. returned from Egypt shorn of his directorship. His bitter and not unnatural chagrin at the turn of events was not decreased by the terms with which Australia confirmed his sentence. He was to perform, under the "sole direction of the High Commissioner," only duties in connection with the return to Australia of invalids who had left hospital. There being as yet few invalids, and no ships to fit up, he remained for the time idle.

This curious reconstruction had taken place on the eve of great events. By the middle of July it was generally known that the resumption of the offensive at the Dardanelles on a large scale was imminent.[14] In response to information from the Australian Intermediate Base Dépôt in Egypt, the High Commissioner on July 15th cabled requesting authority for expansion from 1,000 to 2,000 beds in England and for appropriate staff. Synchronising as it did with large demands

The search for a policy

[13] The system of disposal on discharge laid down at this time by the War Office was as follows:—

If fit for duty or light duty: Granted furlough of 14 days by the officer in charge of the central hospital.

If not fit for duty or light duty: Sent to convalescent home.

On discharge, fit men (after furlough) join the reserve unit (training unit), and those who are fit for light duty join the dépôt ("base dépôt" of the regiment, or, in the case of the Territorial force, "3rd Line dépôt").

Responsibility after discharge rested with the "regimental" staff. A hospital board decided the various degrees of unfitness: discharge from the service and transfer to special hospitals were also arranged by the hospital authorities.

[14] On July 13 No. 3 A.G.H., which had arrived at the end of June, was deflected to the Levant, with its staff supplemented by the senior surgeon and radiologist from the "Australian Voluntary Hospital," which was soon after reorganised as No. 32 British Stationary Hospital, its staff for the most part becoming absorbed in the British service.

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from Egypt for "special reinforcements," the cable brought to a climax a growing concern in Australia in regard to her contribution towards the care of her sick and wounded. "These increases (the acting D.G.M.S. reported to the Minister) are not being ordered on any system nor in proportion to any existing unit. Staff is sent as asked, but not complete as a medical unit . . . the whole arrangement is inexplicable." A cable was sent asking—with a view "not to interference or to hamper" but to "ensure harmonious working"—whether, as at first sight appeared, it was desired by the Imperial authorities that Australia should supply a complete medical service for her troops overseas. This the Government "would be pleased to do": but in such case it desired to retain control of internal administration.[15] The reply by the War Office, which was possibly not uninfluenced by General Keogh's hesitation regarding Australian control, absolves Australia, so far as the British Government is concerned, from any possible charge of having neglected to provide her troops with their complete quota of medical units. The War Office, through the High Commissioner, intimated that it was not desired that Australia should provide a complete medical service, but welcome would be given to contributions as far as Australia was prepared to furnish. The War Office proposed a policy of attaching medical and trained nursing personnel from Australia for duty in sections of the large British hospitals "established for the general needs of the Expeditionary Forces," but in this proposal the arrangements for internal control were left somewhat indefinite. The High Commissioner informed the Defence Department of the proposal, and, in doing so, suggested, as a staff for the first 500 beds established on these lines, twelve officers and forty female nurses.[16] Arrangements

Complete service not desired

[15] Extract from cable from the Defence Department to the High Commissioner, dated 26 July, 1915: "*Re* provision medical services for Australians it appears desired by Imperial authorities that Australia should supply complete medical service . . . this Government pleased to do so; ascertain if this is correct, if so, then consider essential that this Government should retain some authority over and have power promote officers now on service, or transfer to other Australian units as considered proper in order to assure harmonious and satisfactory working . . . present arrangement unsatisfactory. . . ."

[16] Australian male nursing orderlies were found to be insufficiently trained.

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were made by the War Office for the attachment of Australian personnel, as they should arrive, to two British "war hospitals," which, to suit the need for concentration, should be "near London"; in these the required proportion of beds would be set apart. In Australia, however, the staff was raised "on the basis of a 1,040-bed hospital"—the "10th Australian."

The Australian hospital ships

Early in August the two coastal liners *Karoola* and *Kanowna*,[17] selected in Australia as hospital ships, arrived with their staffs in England, where their fitting was expeditiously carried out by the Admiralty with full regard to the high standard demanded by Surgeon-General Williams. A War Office letter laid down the "procedure for invaliding to Australia by Hospital Ships and Transports." For the former the D.D.M.S., Southampton, was made invaliding officer, but was "associated" with the D.M.S., A.I.F., who issued very complete "Standing Orders for Australian Ships." The invaliding system was based on that adopted for Indian troops, a service of Australian hospital ships between Suez and Australia being correlated with a service by British ships between England and Egypt. For cases "not requiring special treatment on the voyage" invaliding by transport *viâ* The Cape was arranged, to be controlled by the High Commissioner; but, as "every available ship" was at this time in use at the Dardanelles, the adoption of this procedure was deferred. An Australian base dépôt of medical stores was established at Southampton.

At the end of the month there arrived the staff for the expansion of Woodcote and Harefield to 1,000 beds, and with it came the commandant for Australian auxiliary hospitals,[18] who took up his duties on September 1st. During June and July only 800 A.I.F. casualties in all had arrived. But the last week in August brought to England the invalids

[17] *Karoola*, 7,391 tons; *Kanowna*, 6,942 tons. The former was fitted up with cots for 44 officers, and 234 cots and 185 berths for rank and file; the latter for slightly less. The staff of each comprised 12 officers, 21 female nurses, and 117 other ranks. Officers were afterwards reduced by three, and a pharmacist and dentist were added. The cost of fitting was approximately £20,000 for each.

[18] Lieut.-Col. J. Froude Flashman, A.A.M.C.

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cleared from Egypt and Malta in preparation for the great offensive, and at the end of that month the *Aquitania* also arrived at Southampton,[19] bringing the total from the A.I.F. for August to 1,500.

The "by-wash" reaches England

In September the number swelled to 4,046 for the month —a number greater than the previous total for all months since the Landing. By October 6th 7,764 sick and wounded had been received from the August operations alone.

The allotment by the War Office of beds in the London hospitals selected—No. 3 London General (T.F.) at Wandsworth and the County of London War Hospital at Epsom[20] —was anticipated and quickened by the rush of casualties. On September 10th 600 Australians—three trainloads—were admitted to Epsom: a week later the 3rd London General held 538. At the end of the month Australian medical officers and nurses were working in both hospitals, not in special sections but in charge of beds allotted as required.

On October 3rd there arrived from Australia in the *Morea* a commanding officer and part of a staff of "No. 10 Australian General Hospital," under instructions to take over No. 1 Auxiliary (Harefield), the staff to be completed for a 1,040-bed hospital from officers and other ranks already in England. This proposal by Australia had been communicated by the Secretary of State for the Colonies to the High Commissioner after the departure of the unit for England. A decided and definite cable in reply urged the advisability of adhering to the admirable policy proposed by the War Office, and this cable, together with the developments at Wandsworth and Epsom (which were a *fait accompli*), led to such adherence being given. After some delay the new staff was disposed of at Harefield, in various London hospitals, at Woodcote Park, and in the supervision and disposal of the considerable number of convalescents now in England who were discharged or awaiting discharge from hospital.

"No. 10 A.G.H." split up

[19] Thirteen hospital trains were required to clear this huge liner "equivalent to eight hospital ships."

[20] *The Story of the Horton County of London War Hospital, Epsom*, by its commanding officer, Lieut.-Col. J. R. Lord, gives an excellent account of hospital work in England and incidentally an interesting appreciation of the Australians both as staff and as patients.

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On October 6th the distribution of casualties was as follows:—in hospitals in or about London (including Harefield and Epsom) 3,913; in the provinces 693. There were on furlough 116 officers and 1,618 other ranks: in the Weymouth dépôt 1,424.

By a system of military and civilian visitors, control was maintained over Australians in British hospitals, and schemes were organised, under auspices both British and Australian, for benevolent intervention in convalescence and furlough. By these means the Australian soldier was shown, in entirely adequate fashion, that his welfare was not forgotten by his own country and that the welcome to the home of his ancestors was not wanting in warmth.[21]

At Harefield the medical staff was feeling the first pressure of a tremendous problem—the "mending of the maimed"[22] by reparative surgery, and the restoration to physical or mental health of the medical derelicts of war. As soon as the first stage of recovery and repair had been reached in the general and auxiliary hospitals of the British system, the "case" was forced on to the convalescent dépôt by the inexorable *vis a tergo* that compelled a constant onward movement in the column of casualties within the hospital system, or if from some special cause he was unfit for that movement, he was carried out of the main stream of recovering sick and wounded into the quiet backwaters of centres for special treatment. Here in growing numbers the various forms of breakdown from the strain of modern war, and the severe or permanent types of disablement from wounds, received special treatment on lines which in every country were by then in process of rapid evolution, directed by the masters in medical and surgical science.[23] All

Harefield—a centre for special treatment

[21] The Australian soldier sick in England unhappily became the theme of an acrimonious dispute engendered by reports, greatly exaggerated, of certain conditions which were for the most part unavoidable.

[22] *Menders of the Maimed*, by Sir Arthur Keith, F.R.S.

[23] Special centres were by this time organised for the treatment and study of traumatic neuroses, neurasthenia and mental disorder, functional cardiac disease, tropical disease, and so forth; and (in the case of the wounded) for the treatment and study of blindness and nerve injuries and for the reparative treatment of bones and joints, tendon and muscles. At "Queen Mary's Auxiliary Hospital," Rochampton, the fitting of limbs was being transformed from a trade to a science. At No. 3 London General there was formed a special centre where surgeons and artists co-operated in the effort to ameliorate the distress, mental and physical, of men with facial injuries.

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Australian casualties of this kind went from the general hospitals to Harefield. Here neither staff nor equipment was commensurate with the requirements. The situation in September was represented to the High Commissioner by the senior surgeon:—

> The large proportion of patients require further surgical aid to correct deformity, restore function, and prevent permanent grave disabilities. The surgical requirements are of a type that will tax the capacity and resource of the most experienced surgeon and . . . their importance cannot be sufficiently emphasised.

"In view of the large amount of nerve and bone surgery urgently required" a desire was expressed for a "well-equipped modern operating theatre," reserved for "clean" cases, together with X-Ray plant, and also for pathology, massage, and physiotherapeutic departments. The expansion of the hospital to 1,000 beds, then in progress, was thereafter designed on these lines, and the staff was gradually augmented, six Australian surgeons in the R.A.M.C. being "lent" by the War Office.

Convalescents—problem of disposal

The number of A.I.F. wounded arriving in England from Gallipoli in August and September had greatly exceeded expectation. In October and November the number showed little diminution, while convalescents were pouring out of the British hospitals in various stages of recovery. Invalids too ill for Weymouth were waiting, either in the British hospitals or at Harefield, for the provision of transport to Australia. On discharge, the convalescents—including, after October 26th, officers as well as other ranks[24]—had to report at Victoria-street, and there, in long queues, "in every manner of uniform or none," they awaited medical examination "in a pokey little room" where a medical officer decided their destination, while an increasing staff dealt with pay, records, and clothing. The Commandant, "Australian Hospitals in England," Lieutenant-Colonel J. Froude Flashman, a man of insight and decision, was not long in realising the involvements of the responsibility placed on the High

[24] The arrangements for the disposal, treatment, convalescence, and invaliding of commissioned officers of the A.I.F. were to a considerable extent special, and were carried out by a separate sub-department of the staff of the High Commissioner (later, of A.I.F. Headquarters). The differentiation was, however, much less complete than in the British Army. At this time somewhat undue facilities were apparently given to officers for prolongation of furlough.

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Commissioner for the disposal of all Australians after discharge from hospital: and he built with a view to the future. The most immediate need was accommodation to permit of a larger staff and a more exact system of disposal. The staff of the High Commissioner had for some time been in search of more extensive premises, and early in October the medical departments (except that of invaliding), together with those for pay, records, and furlough, moved to the Westminster Methodist Training College, Horseferry-road—the future home of the A.I.F. abroad. Here, with ample accommodation, a large staff, medical and clerical (including a number of senior officers invalided from Egypt), directed, as examiners and reviewing boards, the disposal of the discharged convalescent. These cases, if found fit, were sent, after furlough, to Weymouth; if they required further treatment, to Woodcote Park or Harefield; if they were not thought likely to be fit for duty "within a reasonable time," they were boarded for invaliding to Australia. After boarding they awaited—on extended furlough, or at Weymouth or Harefield—the ships which were to take them home.

New headquarters—Horseferry-road

During this month (October) a start was made towards clearing off the now considerable number of men "unfit for service." In accordance with the policy noted above, the Australian hospital ships *Karoola* and *Kanowna* had left at the end of September for Egypt, taking from England only eighteen invalids. For the English clearance, at the end of September the transport *Suevic* was fitted up[25] with double-tier berths, which had been insisted upon by General Williams as necessary, instead of hammocks, for the transport of the type of invalids concerned; and on October 8th she left for Australia *viâ* The Cape with 489 cases and a staff of three medical officers. In November she was followed by the *Runic* with 544.

Invaliding: to Australia

The class of case—by far the largest—for which treatment in the "military convalescent hospitals" was indicated (i.e., those "likely to be well within six weeks," and therefore

[25] At a cost of £18,000. The fittings were removed in Australia to make room for troops. Only the *Karoola* and *Kanowna* were registered as hospital ships, and painted white.

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under order to be fitted for service) soon overtook the beds available at Woodcote, though these were increased on October 7th to 1,000. Every day saw larger numbers presenting at Horseferry-road; reports from British hospitals gave no promise of abatement. To meet the crisis, the War Office, at the request of the High Commissioner, made available as a temporary measure hutments near Woolwich for 2,000 cases. The establishment thus begun became known early in November as the "Bostal Heath Convalescent Dépôt"—an intermediate dépôt between that at Weymouth and the auxiliary convalescent hospitals. A medical staff was installed under an "S.M.O." together with military personnel for retraining.

More convalescent accommodation

For purposes of discipline the Commandant, Australian Hospitals, on the advice of the War Office, arranged that the Bostal Heath dépôt should be placed under combatant command. It was thereby brought into line with a new British organisation associated with the introduction of the "Derby scheme" for recruiting—a last unsuccessful effort by Great Britain to avoid "conscription" while endeavouring to keep her armies at strength. This development was in the direction of a further integration and centralisation of the functions of the regimental and territorial dépôts. On October 1st a War Office letter initiated the system of "command dépôts," which largely replaced the "military convalescent hospital," their purpose being "to ensure by suitable medical treatment that the increasing number of infantry soldiers invalided from the Expeditionary Forces may become fit as quickly as possible." Incidentally this arrangement introduced a new feature into the Australian administrative situation in England. In virtue of its semi-military character the "intermediate dépôt" (Bostal Heath) was absorbed into the command of Sir Newton Moore (the dépôt at Weymouth), which became thereby more closely associated with the medical aspects of convalescence. Already the Australian and New Zealand Base Dépôt, at Monte Video Camp, Weymouth, had been extended by an invalid section

The "Command Depot" system

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("Westham Camp"), and, working under considerable difficulties, its staff had at the end of October sent off to Gallipoli nine small drafts—totalling 650.

Winter arrangements

The onset of winter was now causing a somewhat peculiar concern to the Australian consultant physician[26] and to the War Office. A conference of senior medical officers, summoned by the High Commissioner, advised that accommodation for convalescents should be sought in the Mediterranean, in order to obviate their evacuation to England. The Medical Adviser was sent to inspect sites offered in Sicily (with the result, already noted, that the scheme was dropped in favour of increased invaliding to Australia), and on his return early in November was accompanied by the acting D.G.M.S., Australia. This officer spent a fortnight in England, where he found the medical administration in a state of much confusion, brought about (as he reported to his Government) through the non-existence of any "Australian officer solely responsible for the administration of the A.A.M.S. in England."

Visit of Colonel Fetherston

At the time of Colonel Fetherston's arrival, Australian medical affairs in England were being administered under three officers on the staff of the High Commissioner, namely, the "D.M.S., A.I.F.," the Commandant, Australian Auxiliary Hospitals in England, and the "Medical Adviser" to the High Commissioner. Each of these had an independent standing, and, though their relations had been to some extent cleared by a decision of the High Commissioner making the Commandant solely responsible for general administration, the three still worked to a great extent apart. The ill-effect of this lack of unified direction on the medical situation was accentuated by an indefiniteness as to the respective responsibilities of the High Commissioner, Sir George Reid, and the Commandant of the Australian and New Zealand Base Dépôt, Sir Newton Moore, on whose "S.M.O." devolved important responsibilities in the disposal of Australian convalescents.

[26] The senior physician to No. 1 A.G.H. (Colonel Maudsley) had at the request of the Defence Department been sent to England from Egypt as consultant physician for Australians.

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Reorganisation of the A.A.M.C.

With the consent of the War Office, and by virtue of his mandate from the Minister for Defence, Colonel Fetherston appointed Surgeon-General Williams "D.D.M.S., A.I.F. in England," directly under the Director-General of Army Medical Services at the War Office. He was provided with an adequate staff, from which, for non-apparent reasons, the Commandant, Australian Hospitals, Lieutenant-Colonel Flashman, was excluded.[27] An establishment was approved for Harefield as a general hospital. In view of the policy favoured by the Defence Department—the return to Australia of all men not immediately fit for duty—secondary treatment in England was not approved by Colonel Fetherston, who desired rather an Australian general hospital for primary treatment and recommended the immediate return to Australia of all cases unlikely to be fit "within a reasonable time." A special board of two eminent Australian surgeons,[28] appointed by him to decide how far such a policy could be put into effect, agreed that a large proportion of such cases as were now being held at Harefield could, if desired, be "sent at once to Australia for treatment," with the proviso that "surgical attention on ship and continued treatment by splinting, massage, electricity, etc.," must be ensured.[29] On the strength of this report the acting D.G.M.S. laid down as a definite policy the prompt return to Australia of all serious war injuries, exception being made in favour of the limbless, who might be fitted with artificial limbs in England. The term "reasonable time" was specifically defined as "three months": and, with the object of ensuring in Australia a more effectual control of Australian affairs abroad, it was laid down by the acting D.G.M.S. that the final decision as to fitness of officers and other ranks for service should rest

[27] D.D.M.S.—Surgeon-General W. D. C. Williams.
A.D.M.S.1—Colonel W. W. Giblin.
A.D.M.S.2—Temp'y. Lieut.-Col. W. Perrin Norris.
O.I.C. Invaliding—Colonel J. L. Beeston.
Principal Matron—Mrs. J. McHardie White.

[28] Col. Sir Alexander MacCormick, R.A.M.C. (T.), and Lieut.-Col. G. A. Syme, A.A.M.C.

[29] Cases of chronic bone sepsis, mal- or non-union of fractures, joint injuries, injuries to nerves not requiring immediate operation, plastic and restorative work, and amputation stumps, were specified.

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with the medical boards in Australia. In this way was initiated the policy which—with certain modifications, including the extension of the period to six months—held throughout the war, and which laid on Australia the responsibility for all forms of reparative treatment, surgical and medical. The involvements of this policy were inadequately appreciated.

The "six months" policy initiated

The visit of the acting D.G.M.S. coincided with the moment when the "by-wash" from Gallipoli, passing through the British hospitals to convalescence, was coming in large numbers under Australian control at Horseferry-road. Here the system remained as built up by the Commandant, Australian Auxiliary Hospitals; but even the large staff was unable to cope with the numbers daily presenting; the Bostal Heath hutments also became insufficient. On handing over on November 22nd, Colonel Flashman had reported to the D.D.M.S. that there were on that day "20 beds available for 200 convalescents presenting at the sick room, Horseferry-road," for whom accommodation had to be found in lodging houses, soldiers' clubs, and local British hospitals, and that from 2,000 to 3,000 were due for discharge in British hospitals. To meet the situation the D.D.M.S. authorised the taking over of a Salvation Army home immediately behind Horseferry-road. This became the "Great Peter Street Convalescent Home," and was for a time employed as a temporary lodging for the convalescents crowding through this "bottle neck."[30] A system of extended furlough provided a further temporary and unsatisfactory diversion to the flow.

Convalescence problems reach climax

By November the oncoming wave had reached the Australian and New Zealand Dépôt at Weymouth and made itself felt there by congesting the available accommodation. though the situation produced was less urgent than in London. On December 11th the High Commissioner for New Zealand drew the attention of the War Office to this congestion, and

[30] Somewhat later the Great Peter-street home was used as a venereal hospital to accommodate cases occurring among the men on furlough. Administered with understanding, some good work was done here, treatment being carried out under the technical supervision of British experts. The circumstances and surroundings were, however, unsatisfactory, and it was not long retained.

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to her no little satisfaction New Zealand was allotted an independent convalescent dépôt at Hornchurch, the Australian dépôt being relieved to the extent of 1,000. On January 1st the commandant for Weymouth (Sir Newton Moore) was appointed by the War Office "General Officer Commanding Australian Forces in the United Kingdom"; but the terms of his appointment explicitly excluded "the Australian medical services, hospitals, hospital ships, or personnel in the convalescent camps, and responsibilities appertaining to the High Commissioner for Australia." The Australian D.D.M.S., Surgeon-General Williams, was placed directly under the War Office.

Gradually the British hospitals emptied, by way of what may be called the lock gates at Horseferry-road, to Harefield or special hospitals for secondary treatment, or else to military control in the dépôts at Weymouth and Bostal. During the first three months of 1916, only 157 cases arrived in England, 3,094 were sent off in drafts, and 1,439 were invalided to Australia. By this time the function and corresponding organisation of the "convalescent" and "base" dépôts, Bostal and Weymouth, had reached a high degree of complexity, gradually developed with the increase in the numbers involved and the methods of disposal. By the end of April, 1916, 3,560 men had passed to Weymouth through Bostal. This "intermediate" dépôt was organised in two sections, one medical, for men requiring active treatment, the other military, for those fit for "hardening." The S.M.O. was supported by a staff of five medical officers and by dental officers and masseurs. In the military section cases were classified as "fit" or "not fit" for route marching, and as "typhoids." The base dépôt at Weymouth, which was at first required to find regular drafts for overseas with very inadequate facilities for re-training and re-equipping, was now adequately equipped and well laid out. 9,281 men had reached the dépôt, of whom 4,000 had passed out in drafts and 2,878 as invalids to Australia. An efficient staff of medical officers under a particularly able "S.M.O."[81] were

A well-developed base depot

[81] Major D. M. McWhae, A.A.M.C.

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fully occupied in the disposal of the varied types of convalescents arriving direct or from Bostal, and in maintaining health. Camp disease was well controlled, save in two respects: venereal disease (contracted in London) was as prevalent as in Egypt, and a major problem of the Western Front was encountered in scabies.[32] By War Office order, every case of enteric from overseas met with from September onwards was, when convalescent, retained in the dépôt until three consecutive bacteriological tests had proved negative. No such case, even after recovery, was permitted to proceed again on service abroad. In April an Australian section of the Weymouth public health laboratory was formed, and during the month 2,240 examinations were made of 890 cases of enteric, of whom 600 were passed as free from infection.

Medical boarding—the "categories"

Invaliding became an important part of the function of the dépôt, all invalids from England for Australia being embarked in transports at Portland or Plymouth. The medical staff became, however, increasingly preoccupied in differentiating—for the purpose of treatment, training, and disposal—the varied degrees and stages of fitness and unfitness in recovered casualties. Indeed, the most characteristic feature of the medical work in Great Britain at this time was the recognition, associated with the increasing call for effectives,[33] of the fact that between discharge from hospital and return to duty or else invaliding, there was an almost unexplored region of convalescence in which the flow through numerous channels was apt to be sluggish and great potentialities presented themselves for concerted action. Each of the various departments concerned in the "boarding" of Australian soldiers—the War Office, A.I.F. Headquarters, and the Weymouth dépôt—devised categories[34] which became more and more elaborate, and which came also to differ considerably in detail, with a corresponding confusion when put into

[32] Of 580 cases of infectious disease during three months, 368 were venereal, 124 scabies; the remainder were measles, mumps, and diphtheria, with an occasional case of cerebro-spinal fever.

[33] On 8 June, 1916, a system of conscription was introduced in Great Britain as essential to victory.

[34] The system of classification of the various degrees of fitness and unfitness for service by categories was first introduced by the War Office in March, 1915, in connection with the examination of recruits.

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operation. In respect of Australian convalescents also effective co-operation was hindered by the duplication of administrative control. After much debate between the D.D.M.S., A.I.F., in England, and the G.O.C., Australian troops in England, a provisional agreement was reached; the War Office classification into five categories, subdivided in respect of partial fitness, was accepted. Meanwhile, however, an elaborate revision of this subdivision by the War Office was in progress.

The move to France

But by this time—the beginning of 1916—the Australian medical administration in England was, in respect of casualties from the East, "flogging a dead horse." On March 18th drafts to Egypt were stopped: by the 20th the A.I.F. was arriving in France. At the end of the month Surgeon-General Williams, as representative of Australia, attended an "Imperial Conference" to determine the destination of A.I.F. casualties in France; at this time the destination was expected to be in Egypt. But already the invasion of England by the "Anzacs" had begun, and in the medical service a new sun was on the horizon. Earlier in the year the new D.M.S., A.I.F., had required explanation of the retention in England of certain medical officers, and the D.D.M.S. and High Commissioner, though able to offer an adequate explanation, had tacitly acknowledged his authority to make the request. At the end of April he arrived in England with his staff, followed early in May by the headquarters of the Australian Imperial Force (formerly the Australian Intermediate Base Dépôt).

A.I.F. headquarters comes to England

By this time the Australian medical organisation in England had reached a development fully comparable with that in Egypt. The medical officer with 6 nurses and 6 other ranks had increased to a staff of 48 medical officers, 88 nurses, and 202 other ranks, with 170 unfit combatant rank and file "attached for duty." The eighty "convalescent" beds at Harefield had grown to a well-organised hospital for secondary treatment of all kinds, staffed by surgeons, physicians, and specialists from the highest ranks of their profession in Australia. Others took part in the care of Australian sick and wounded in British hospitals.

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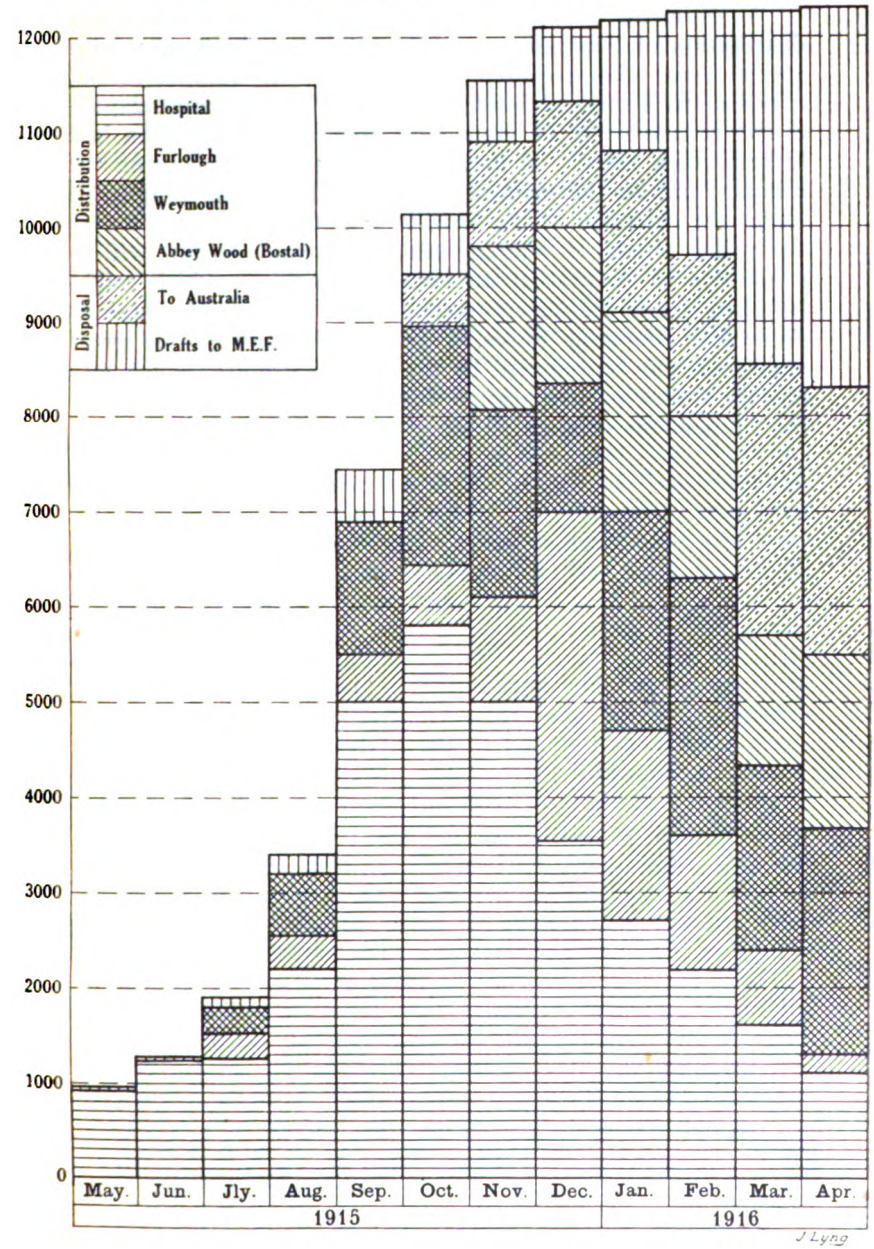
Graph 11

DISTRIBUTION AND FINAL DISPOSAL OF ALL A.I.F. CASUALTIES WHO ARRIVED IN ENGLAND FROM THE M.E.F., EGYPT, AND MALTA



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A complete system for the reception, treatment, and distribution of Australian casualties had been built up to suit special Australian requirements, and, for its administration, it possessed a medical headquarters well housed and adapted to the requirements of immensely greater numbers than had hitherto been faced. It may indeed be said that, both on the military and on the medical side, there had been designed—under the direction of the British War Office, but, so far as the prime object of winning the war would permit, with a single eye to Australian interests—a mould in which might be cast, from the newly-molten metal of a self-contained Australian Imperial Force, a serviceable part of the great engine of war represented by the British Empire, which was now in throes of preparation for its most terrible stroke in this stupendous conflict.

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CHAPTER XXIV

THE SERVICE IN AUSTRALIA, JANUARY, 1915–JUNE, 1916

In the eighteen months which followed the departure of the first and second contingents, the army medical service in Australia had to face the tasks involved in selecting and preparing great numbers of new troops for the front and in receiving and treating the invalids who began to flow back thence. In this period arose problems of great importance and interest—in sanitation, particularly associated with the control of cerebro-spinal fever; in preventive inoculation; in the treatment of and responsibility for limbless, tubercular, and otherwise incapacitated soldiers; and in reinstatement. In this period was inaugurated a system for the discharge of such obligations which was to continue for many years after the war. Though these problems of the home base were less crucial than those which faced the people of Great Britain, and less poignant than the trials of her own field force amid battle and death, they were nevertheless engrossing and were fraught with momentous consequence for good or ill to Australia and to her troops overseas.

* * *

By the end of 1914, 31,881 troops had been despatched to the seat of war. These were followed by reinforcements and formations in irregular spates but with increasing flood, till that of November, 1915, reached the maximum of 21,400. By the end of June, 1916, the total was 200,225. Early in 1915 there came back from the front the first trickle of the halt and maimed, and by the end of May, 1916, this had become a flow averaging 1,325 per month, prelude to that stream of invalidings from six divisions which resulted from an incidence of battle casualties unsurpassed in its proportion by that of any national army in the war.

The circumstances of the raising of this force, and the provision made by Australia for the repair, reinstatement, and rewarding of her broken soldiers, are for the most part related elsewhere.[1] Within the limits of its responsibility, however, the medical service played an important part in

[1] *The Official History of Australia in the War, Vol. XI (The War Effort in Australia)*, by Professor Ernest Scott.

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these aspects of the national war effort, and of this some account is needed in order to complete the narrative of the work of the Australian army medical service during this first phase of Australian participation in the Great War.

Recruiting in Australia, 1914–16

To appreciate the relative significance of the Australian war effort as well as to understand, from the medical standpoint, the course of events, it is necessary to follow the progress of the recruiting and despatch of troops from Australia. The rush of enlistments in 1914 exceeded the requirements for the first two contingents and for their reinforcements (3,227 monthly), and on the 20th of January, 1915, two additional brigades were offered to the War Office; during negotiations the number was increased to four. This offer resulted in the despatch during May of the 4th Light Horse and the 5th, 6th, and 7th Infantry Brigades (subsequently formed into the 2nd Australian Division) with first reinforcements of ten per cent, the total amounting to 17,183 men. The monthly quota of reinforcements now reached 5,263. With the news of the Landing and the subsequent fighting national enthusiasm reached a high pitch, and recruiting campaigns were organised in every State, especially Victoria (the seat of government). In this State enlistments in July amounted to 21,698, and the rush, which was followed in other States, resulted in great concentration of troops in camp at the beginning of winter. The disposal of this accumulation was not carried out on any exact principle. In general, commitments under the first offer were made the motive for successive calls for recruits, the overplus being disposed of by additional offers of new formations; these again involved heavy and increasing commitments for reinforcement. Thus, in order to make good the losses of the Landing, on July 9th the Commonwealth offered to double the reinforcements for October and November,[2] these being in addition to the provision of another infantry brigade. This, the 8th, was despatched in November. In October came the Royal Message to every dominion inviting further voluntary effort. Though recruiting had fallen, camps

[2] From October, 1915, the rate of reinforcements was again increased (*see p. 369n*).

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were full, and the Australian Government promised 50,000 additional "men for active service." The form in which these were actually sent had a great influence on the whole Australian war effort. Three additional divisions were authorised, the 4th and 5th to be formed overseas, the 3rd to be raised in Australia. The balance of troops in camp supplied first reinforcements for these; but the commitments for future reinforcements of 11,000 per month for the five divisions and four light horse brigades taxed the utmost resources of Australia (under voluntary enlistment) for the rest of the war and necessitated a series of special recruiting campaigns. The 3rd Division was despatched in May, 1916.

Vital responsibility of medical service

The importance of the responsibilities that fell to the medical service in Australia in connection with this large military force needs special emphasis. They included the raising and training of medical units for the A.I.F. and of the reinforcements for them; the organising of associated technical services; the organising of local service for home requirements; the provision of the requisite medical equipment and stores; and the execution or direction of the very important medical duties that arose in connection with the outgoing flood of effectives and the incoming stream of invalids.

The Staff

The administrative staff and medical organisation required to meet these duties grew by slow accretions from the beginnings described earlier in the volume.[3] In each of the six military districts the "Principal Medical Officer" enlisted[4] for service overseas, and those appointed to replace them remained, for some time, part-time officers only. The routine duties fell largely on the Australian Instructional Staff, and chiefly from this permanent staff were also drawn from time to time personnel to fill new positions created in connection

[3] *pp. 22-32.*

[4] The positions taken by administrative medical officers on enlistment in A.I.F. were—

D.G.M.S.—D.M.S., Australian Imperial Force.
P.M.O., 1st M.D.—O.C., 3rd Field Ambulance.
P.M.O., 2nd M.D.—O.C., No. 3 Australian General Hospital.
P.M.O., 3rd M.D.—A.D.M.S., 1st Australian Division.
P.M.O., 4th M.D.—O.C., No. 1 Australian General Hospital.
P.M.O., 5th M.D.—O.C., No. 1 Australian Stationary Hospital.
P.M.O., 6th M.D.—O.C., 1st Australian Clearing Hospital.

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with the camps of training, the supervision of invalids, and the organising of hospitals. Devolution of executive responsibility to the military districts was carried far, and Principal Medical Officers were allowed great local initiative. It may, in fact, be stated that general principles were laid down by the Director-General, while the P.M.O's built thereon such procedure as seemed to them best or most easily worked. The Director-General maintained control by issuing through district commandants what were known as "All Commandants' Memoranda," and by occasional inspection by staff officers. At the end of July, with the arrival of invalids from overseas, a full-time medical staff officer[5] was added to the Director-General's staff, and an adjutant to those in the two larger military districts.

Reason for tour of A./D.G.M.S.

By the middle of 1915 the situation in respect of the medical service with the force overseas, and particularly its relations with the War Office, had arrived at something of a crisis, the circumstances of which have appeared in previous chapters. The Minister for Defence, who had promised that the Australian soldier should receive abroad medical care as good as he could get at home, found himself unable to understand the significance of communications received from overseas, or to ascertain through his acting Director-General in Australia the position as to the medical care of the A.I.F. From Gallipoli came sinister reports concerning the treatment of the wounded, and of a huge sick-rate. The situation in Egypt was confused beyond unravelling, and that in England appeared little better. The disorder in respect of the interior economy of the service, the repeated demands for "special reinforcements" with no basis in establishment or organisation, and the general uncertainty as to what was required from Australia in this respect, led the Minister (Senator Pearce) to send his acting Director-General to the seat of war so that he might acquaint himself with the situation at first hand. Colonel Fetherston sailed for Europe on August 24th,[6] leaving Colonel A. E. Shepherd as his full-time deputy.

[5] Major F. A. Maguire. His chief executive officer was Captain G. E. Sykes.

[6] The step was in every respect justified: his observations were embodied by the acting D.G.M.S. in a very able and exhaustive report to the Minister.

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Staff greatly increased

This officer found in the local situation a counterpart, in its way, to the cardinal phase in medical development which had been reached at this time in Great Britain. Recruiting was at its zenith; the medical problems in camps were pressing; and the incoming stream of invalids was already presenting other problems approaching, and soon to exceed, these in magnitude and diversity. A policy (already overdue) of administrative devolution and development at Headquarters was introduced—and perhaps somewhat overdone. At Headquarters the staff of the D.G.M.S. was augmented on the clerical side and reorganised. "To organise dental services throughout the Commonwealth"[7] a "principal dental officer" was appointed to the staff of the Director-General and a "senior dental officer" in the 2nd and 3rd Military Districts. The appointment of a "pharmaceutical staff officer" was associated both with such a reorganisation of that service as to put it "in line with Dental and Massage Services" and also with much needed reform in the matter of medical supplies. In the military districts the principal medical officers were put on a full-time basis; also in each district new executive officers were appointed in connection with camps and transports. The district "command sanitary officers" were called up for permanent duty (part time), and the Commonwealth Director of Quarantine was appointed "Adviser in sanitation." The co-operation of the medical profession in general was enlisted in the form of numerous expert committees of advice and technical advisers.

On his return on January 1st Surgeon-General Fetherston, now Director-General, reverted in some matters to a more self-contained policy. For the most part, however, the developments had been necessary and were retained and even added to. Early in 1916, for example, a special nursing department was formed in connection with that of the Director-General, a principal matron being appointed to his staff.

[7] In connection with the new Australian Dental Reserve authorised in January, 1915, but not made effective till May (*see p. 519*).

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Relations with new D.M.S., A.I.F.

Immediately on his return the Director-General had obtained from the Minister authority for the gazetting of Colonel Howse to the position of D.M.S., A.I.F., with the rank of temporary surgeon-general, in place of Surgeon-General Williams, and also for an administrative staff in connection therewith. The establishment of this office, fully staffed and with defined authority, entirely transformed the situation in respect of the medical service of the overseas force. Not the least interesting aspect of the Australian participation in the European war is illustrated in the relations between these two departments.

Here must be taken up the narrative of the work performed in Australia by the medical service and various co-operating organisations in connection with the raising and maintenance of the A.I.F. and the care of its casualties sent back from overseas.

Raising of medical units and personnel

First among the duties of the administrative staff in Australia came the raising of a medical service for the overseas force and of medical personnel for service at home. The raising of the medical units which sailed with the early contingents has already been described. Those sent later consisted, first, of the field units and personnel proper to the military formations, recruited and raised within the various "districts"; second, of various special units and personnel recruited on requests from the War Office. The first of these requests, in February, 1915, expressed[1] the "desire" that 100 medical men, single and under thirty-five years of age, might be recruited for service with the R.A.M.C.; a second 100 were asked for soon after, and also nurses to serve with the Q.A.I.M.N.S. 115 medical officers and 136 nurses, raised by appeal through the press and through the faculties of medicine at the universities, had been despatched in answer to these calls when in May the request for a double general hospital, and in June for large "special reinforcements" for England and Egypt, brought a stop to this policy, and the endeavour mentioned in a

[1] At the suggestion of Surgeon-General Williams (*see pp. 88 and 492*).

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previous chapter[9] was made by the Australian authorities to ascertain the actual requirements, concerning which this irregular method of raising a medical service had caused much uncertainty and confusion. No. 3 Australian General Hospital was despatched in June, and No. 10 in July (the latter in the endeavour to check the system of "special reinforcements"). In response to a suggestion by the War Office that certain line-of-communication troops would "render the 2nd Australian Division more self-supporting," the 2nd Casualty Clearing Station and 1st Sanitary Section were sent to Egypt in October, 1915. The corresponding units were also provided for the 3rd Division. At the end of the year the "Australian Dermatological Hospital" was raised, on the initiative of the medical profession, to fill a deplorable gap in medical organisation, and was sent overseas on December 22nd. This was in some respects a unique unit, staffed by specialists, specially equipped for the scientific treatment of venereal diseases, and provided with a fine pathological department.

In June, 1915, "dental units" were raised and despatched. From the outbreak of war the dental profession in Australia had set itself wholeheartedly to two tasks, first, to meet by voluntary service the immediate requirements of the force which was being raised for overseas, and second, to convince the military authorities that a modern army, like modern civilisation, is incomplete without an effective dental service. There have already been described the steps taken to deal with the first problem, and also the tentative move by Surgeon-General Williams to provide for more direct participation by the dental profession in the work of the medical service;[10] "Military Order No. 11" of 12th January, 1915, wherein approval was given for the "establishment of Dental Surgeons in connexion with the A.A.M.C. Reserve," with a total personnel of six captains and fifty lieutenants, represents the first step in the formation of an Australian army dental service. The first appointments were made in March, 1915, but the reserve was not utilised till May, when

The associated services: Dental

[9] *See p. 498.* [10] *See p. 26.*

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its members were called up for home service. The demand of the dental profession for opportunity to participate in the medical work of active service, with status as a technical branch of the Australian Army Medical Corps, was backed—with vehement and even bitter importunity—by the force overseas, and in July, 1915, "Military Order No. 387" (a landmark in the history of the Australian dental service) authorised the appointment of dentists to commissioned and dental mechanics to non-commissioned rank in the A.I.F. In this development there can be recognised the operation of a general principle, namely, that success in modern warfare requires that every advance in the science and art of civilised living must be called upon to play its part in promoting the efficiency of the fighting force. Authority was given for personnel totalling 39—13 lieutenants, 13 staff-sergeants, and 13 privates. These were to be enlisted partly in Australia and partly from the force overseas, and were to be organised as dental sections.[11] Adequate but as yet unstandardised equipment was provided. The reorganisation of the A.I.F. in Egypt involved the enlistment of a large number of dentists and dental mechanics, and by June, 1916, there had been sent overseas for dental work a total of 126. The dental service of Australia was raised as an integral part of the Australian Army Medical Corps, and it is beyond question that this step proved a source of strength and mutual benefit to both services.

Pharmaceutical

It was not till a later date than is covered in this review that approval was given to the principle of granting honorary commissioned rank in the A.I.F. to pharmacists. Qualified pharmacists[12] served abroad as staff-sergeants, sergeants, or corporals. By the middle of 1916 29 qualified pharmacists were serving with the A.I.F.

The circumstances in Egypt that led to the reversal by the acting D.G.M.S. of his decision that masseurs and

[11] As an illustration of the uncertainty as to the part of a dental service, the dental officers of the 2nd Military District were sent out to train in stretcher drill with field ambulance bearers, and some claim to have achieved considerable efficiency in that line of service.

[12] In every State in Australia registration of qualification is necessary to practise as a pharmacist, and is controlled by examination associated with a regulated and well organised system of scientific study and practical training in pharmaceutical colleges.

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masseuses should not be enlisted as such in the A.A.M.C. will be recalled.[13] From December, 1915, both became a regular part of medical establishments, and by June, 1916, eleven male and twenty-two female operators trained in this branch of medical treatment had been sent overseas.

Massage

Including reinforcements, by the end of May, 1916, a total of 554 medical officers, 43 dental officers, 844 nurses, and 7,936 others had been despatched for service in the A.I.F., and, in addition, 115 medical officers and 130 nurses for service in the British Army.

Nursing

Until the despatch of the units for the 2nd Division, medical officers with militia training were available for the field force, but in subsequent detachments the majority were for the most part ignorant of military organisation and routine. Their military training, and that of the rank and file, was at first directed entirely by the district commands. During 1915, indeed, there was little opportunity for systematic training: for the most part both officers and other ranks were prepared for service overseas very much on the system of Dickens' Dotheboys Hall, training being part and parcel of routine camp duties, picked up "as they went along." At the beginning of 1916 the Director-General introduced more exact methods, which embodied also the policy (initiated by the new D.M.S., A.I.F.) of enlistment for the medical corps as a whole and not territorially for units connected with particular States. Four weeks' "drilling" in camp was followed by six weeks in a military hospital on orderly duty, and seven on nursing duty. Training led up to voyage-duty in a transport.

Training

With the departure of the 5th, 6th, and 7th Brigades in May great difficulty was encountered in supplying medical officers to meet the rapidly growing requirements of reinforcement camps and military hospitals in Australia. For these "home service" duties there was gradually built up a special organisation based on the militia, citizen force, and medical corps reserve. To provide staffs for the military hospitals, a military order of 22nd June, 1915, laid it down

Home Service—medical officers

[13] *See pp. 419-420.*

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that personnel should be "mobilised" by volunteers from these three sources, or, if an insufficient number should present, it might be enlisted "outside the Australian Military Forces" for the "term of the war or such period as may be required." Special provision was afterwards made whereby volunteers for the A.I.F., while awaiting enrolment, passed through a period of home service, which formed part of their training, and ultimately some ninety-five per cent of all men who volunteered for the medical service overseas were occupied, for longer or shorter periods, in these home duties. Moreover, officers and other ranks who were medically unfit, or unable for other reasons to proceed overseas for service in the A.I.F., were eligible for home service. A defect (and that a serious one) of this method of providing for administration and command at home was that important positions were at times filled by men without war experience. It must in fairness to the home authorities be said that in 1916 efforts were made to obtain "first class men" from the A.I.F.; but they "could not be spared." A military instruction in July, 1915, laid it down that "all nursing duties in connection with the Military Forces where females are employed will in future be undertaken by members of the Army Nursing Service." Special terms of service were defined for this duty and included a condition that nurses who thus worked in home establishments should have a prior claim to enlistment in the A.I.F.

Preliminary to service in A.I.F.

Nurses

Till the middle of May, 1915, dental work in connection with recruits was carried out by voluntary service. In that month Ministerial approval was given for calling up for duty "at pay of rank" dentists who had been "recommended for commissions in the A.A.M.C.," their function being to "carry out work to make men fit for service." Voluntary work was, however, continued, particularly in the capital cities, where the public dental hospitals were made available for the dental work among recruits, only the "cost of material and out-of-pocket expenses" being made a charge on the Defence Department. A military order dated 22nd February, 1916, provided for a

Dental officers

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dental establishment for home service of 2 majors, 6 captains, 160 lieutenants, 5 warrant officers, and 163 staff-sergeants.

Massage

In August, 1915, authority was given for the formation in each military district of an "army massage reserve," and an establishment of 6 honorary lieutenants, 48 masseurs (staff-sergeants), and 48 masseuses (staff-nurses) was approved. From these were drawn operators for the military hospitals at home. The technical side of this branch of physical treatment was developed with an enthusiasm and conviction which left its theory and science—as expounded by the medical service and profession—far behind. By June, 1916, 18 male and 32 female operators were enlisted in this reserve.

Pharmacists and medical stores

As regards the supply and distribution of medical and surgical stores and equipment, the arrangements with Great Britain[14] freed Australia from the task of providing these for her overseas force. Home requirements were for some time met, very uneconomically, by a system of local purchase. It was not till December, 1915, that the services of the pharmaceutical profession were enlisted in effective co-operation and the matter of medical supplies placed on a satisfactory basis. In December an establishment was approved by the Minister for what was in effect a pharmaceutical service. This included a commissioned officer (honorary captain) in each military district, through whom were made all appointments to overseas units and to home service positions. Pharmacists appointed to the A.A.M.C. Reserve were made to rank as honorary lieutenants; all dispensers, whether for home service or with the A.I.F., were assured of non-commissioned rank. A base dépôt of medical stores was established in each military district to supply camps, hospitals, and transports, replenishing by contract for items manufactured in Australia, by indent for imports. In April, 1916, a central dépôt of medical stores was authorised for "the supply, purchase, or manufacture and subsequent distribution to districts of medical, surgical, dental, and veterinary supplies." This ultimately served all the military requirements. The "senior pharmacist" in

[14] *See pp. 57 and 94.*

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each district and the pharmaceutical staff officer at headquarters maintained an effective *liaison* between the medical service and the pharmaceutical profession—which by this time was facing technical problems of considerable complexity created by the war in connection with the supply of drugs.[15]

Outward flow of effectives—examination of recruits

It remains now to follow, from the point of view of the medical service, the fortunes of the general volunteers of the A.I.F. in the camps of training and hospital system in their home country. Attention is directed first to the medical responsibilities in connection with the troops for overseas—responsibilities which began with the medical examination of the recruits. In Australia, as elsewhere, the first year of the war revealed the fact that a comparatively large and quite unexpected proportion of the adult male population was unfit for military service. Recruiting during the first eighteen months of the war was marked by a progressive lowering of the physical standards (in height, weight, and chest measurement) and by increasing difficulty in complying with the reiterated demands from the A.I.F. for adherence to a high standard of fitness.

Protests from overseas not fully borne out

Bombarded from overseas with repeated protests at the inclusion of men considered unsuitable by medical officers at the front, and impelled on the other hand—as the call for "effectives" became more clamant and the "first fine frenzy" for enlisting wore off—by increasing pressure, political and other, to relax the stringency of the medical tests, the acting Director-General trimmed a course to suit both sides, and ended in satisfying neither. It cannot be said that investigation of the available records of re-examinations of men returned from overseas as "unfit" reveals any startling evidence of laxity at this time. It is true that reports from various sources make it clear that a considerable number of obviously unfit recruits slipped through: but the majority of the men concerned in the iterated complaints from the A.I.F. were the subject of

[15] The problems, economic and technical, brought about by the dislocation of the sources of supply of drugs, etc., though of great interest, can only be touched upon in this work. Certain aspects of the problem will be mentioned in *Vol. II* of this history, and *Vol. XI* of the *History of Australia in the War of 1914-1918*.

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deformities and diseases of which the military significance is notoriously difficult of exact appraisement, even if they can be detected. During the first year of the war approximately thirty-three per cent of all volunteers were rejected. In June, 1915, the standard of height was lowered to 5 feet 2 inches. With the establishment of a dental service the fitness of recruits, from the standpoint of that profession, became a matter merely of the time necessary for their treatment, for which an effective procedure was built up by this new and zealous department. Provision was made for the enlistment of men who required both upper and lower dentures, and this naturally rendered available a large body of men otherwise ineligible. As a result of reports from the ophthalmic specialists, the eyesight tests were slightly relaxed and the use of spectacles was permitted. Venereal disease was put on the same basis as dental unfitness. The age limit was increased to forty-five.

In respect of the medical examination itself, the irregularity of recruiting made exact arrangement difficult, and it is evident that no very precise procedure was built up. In general the policy was adopted of making the examining medical officer personally responsible, and of seeking his co-operation in overcoming the difficulties connected with the detection and rejection of unfit men among the recruits. Toward the end of 1915, however, "standing medical boards" were appointed to pass or reject all recruits "about whose fitness there was doubt," and, in order to suppress impersonation, repeated re-examination before embarkation was ordered.

Value of inoculation questioned

The unexpected developments in regard to enteric diseases in the latter half of 1915 brought about something of a crisis in the matter of anti-typhoid inoculation as a condition to enrolment. Early in the year reports from Egypt of the absence of typhoid had been hailed as evidence of the efficacy of the procedure. No greater danger besets the medical profession than that of premature wresting of evidence to suit current theory, and this hasty and unfounded optimism was soon shaken. By June the occurrence of cases diagnosed as "typhoid" in the troops at Gallipoli was

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generally known. The Minister and the acting Director-General, in common with the medical profession and the public, were greatly disturbed. The matter was brought into special prominence by the policy of returning to Australia all recovered "typhoid" cases.[16] The opponents of inoculation—by whom evidence of the numbers of "typhoid" cases had been collected with commendable determination and care—called for a reversal of the policy. The Director-General was almost without information, but it was abundantly clear that "something had happened." Leaders of the medical profession, being consulted, advised stricter care in inoculation. After due consideration this advice was accepted by the Minister, who, throughout, displayed admirable judgment and balance.

A cable from the acting Director-General on his arrival in Egypt, indicating that the trouble was there attributed to paratyphoid, cleared the situation completely. Preparations were made by the deputy-director in Australia for combined inoculation on the lines of the experimental work done at No. 3 Australian General Hospital, but the procedure was postponed till the return of the Director-General. He, however, reversed the decision of his deputy, and declined to accept not only the conclusions arrived at but also the direction of the War Office that inoculation against paratyphoid also should be carried out. Instead, he initiated a series of clinical experiments which postponed "T.A.B." inoculation in Australia for twelve months. In the meantime anti-typhoid inoculation was carried out on no exact plan, each military district deciding its own method and dosage. It is difficult to justify on any grounds this unfortunate neglect to follow advice from overseas, and it was to lead, as might have been expected, to much trouble.

Advice unfortunately neglected

To come to the camps. During the year 1915-16 the passage of the recruit through these in the various military districts was far from smooth. It was, indeed, a cause of great anxiety to the medical departments at Defence

Sickness in camps of training

[16] One transport, for example, was entirely devoted to 358 recovered typhoids and paratyphoids.

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Headquarters, and not less so to those in the several military districts. It was also a matter of very serious concern to the civil community. The prodigious debauch of the world war made the "civilised" communities that took part in it realise the vulnerability of the Colossus of modern "civilisation," but in few ways did it bring home the fact more intimately than in revealing the extent to which the micro-organisms of transmissible diseases took charge, even in the camps of training at home, whenever any relaxation was permitted in respect of those fundamental principles of preventive medicine whereby the health of modern communities is maintained and the evolution of the "Western" type of civilisation made possible.

During the summer of 1914-15, up to which time there was still an adequate supply of well-trained medical personnel, no specially untoward happenings impeded the orderly progress of camp life: gastro-intestinal infections are very susceptible to a good water-supply and to comparatively simple "sanitation," and were never prevalent. Typhoid (very common in outback towns) was inconspicuous, paratyphoid unrecognised. The rush of enlistments after the Landing reached a maximum in July, when they totalled for all States for the month 36,575, of which 21,698 were in Victoria, which brought the high-water mark of troops in camp to 73,963 in October.

After the departure of the 5th, 6th, and 7th Infantry Brigades the medical organisation in the reinforcement camps was for a time very defective. From that time till the end of 1915 officers and other ranks of the A.A.M.C. were inadequate in numbers and imperfectly trained. With the winter[17] and the break-up of the season, weak points became evident in some of the camps. This was particularly the case in Victoria, where the winter was wet and early, and it is on the events in this State that description conveniently centres. The roads in Broadmeadows Camp were unformed;[18] the

Winter in 1915

[17] In the southern States of Australia, from about April to September. "Summer" in the northern parts extends from about August to April.

[18] As early as October, 1914, the D.A.D.M.S., 1st Australian Division, had reported of this camp that "for a prolonged camp the site is not suitable owing to the clay character of the soil and difficulty of drainage."

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continuous rains converted the surface into a tenacious mud. The tents were unfloored; mess huts and drying huts were lacking. Inspiratory infection, which even in the summer had caused the prevailing diseases, assumed a prevalence that gave rise to anxiety. The troops were transferred to Seymour pending the reconstruction of the Broadmeadows Camp, but any benefit that might have resulted from the transfer was frustrated by the rush of recruits. Seymour Camp became greatly overcrowded, and, in spite of improved hospital accommodation, deaths from pneumonia (idiopathic or associated with influenza or measles) became frequent.

Cerebro-spinal fever

A disease curiously similar to pneumonia in its epidemiological features, and with even greater lethal potentialities, now appeared. Since 1910 cerebro-spinal meningitis—part of a world wave of this disease[19]—had been increasing in the civil community. At the time under review the carrier incidence was beyond doubt very great.[20] The circumstances in the camps, particularly in the southern States, provided precisely the conditions welcomed by the *neisseria meningitidis*. A few cases occurred at Broadmeadows in May. Among the 15,000 troops at Seymour the outbreak assumed almost epidemic proportions. The disease appeared to a lesser degree in all the other States and, with measles, was a contributory cause of the abatement of recruiting and of the corresponding decrease in enlistments that took place during the last three months of the year.

As elsewhere, preventive measures pursued the inspiratory epidemic instead of forestalling it. In August the Principal Medical Officer of the 3rd Military District asked for increased tent space at Seymour. The Director-General thought it "not so much the number of men in the tent as the amount of fresh air" that mattered, but agreed that "the numbers should be reduced as much as possible."

[19] The prevalence of this disease in Canadian camps in England in 1914-15 will be recalled.

[20] Precise data are not available. The detailed bionomics of this disease have to a great extent been worked out during or since the war.

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Living conditions were improved; opportunity for infection from without was limited by the abolition of night leave and of transfers from infected camps. A system of decentralisation was initiated, limiting the size of camps to 5,000. In September a conference of specialists, presided over by the Commonwealth Director of Quarantine (Dr. J. H. Cumpston) recommended as "essential" the stamping out of the disease by the lessening of overcrowding. Though recruiting continued, transfer to camp was for the time stopped. By this time the carrier-rate among the troops in camp had so greatly increased that the direction of the flow of infection was reversed—the camps became sources of contagion to the general community instead of *vice versa*.[21] The outbreak was aetiologically only an incident—though the most dramatic one—in a widespread wave of inspiratory infection,[22] whose ripples have been traced even to Gallipoli. With summer and improved conditions in all the States the tide of infection ebbed; but inspiratory infections, though they decreased, remained very prevalent. Cerebro-spinal meningitis continued in sporadic form with local and, in 1916, seasonal outbreaks.

Incidence in camps

Of the cases of disease reported among the troops in Australia from July, 1915, to June, 1916, inclusive,[23] 61 per cent were from inspiratory and naso-pharyngeal infections, of which 20 per cent were measles, 55 per cent "influenza." Up to 30th June, 1916, 604 cases of cerebro-spinal meningitis had occurred among the recruits (an incidence at least five times that among the civil population), with 256 deaths—a mortality of 42.4 per cent. Up till this date there had

[21] In South Australia, for example, it was reported that every case among civilians in September had been traced to the military camps.

[22] The epidemic of cerebro-spinal meningitis coincided with an extensive incidence of a febrile disease of moderate severity, but without mortality, whose nature was obscure and which was therefore called "influenza." The suggestion was made that a considerable proportion of these were meningococcal. (From a report to the Director of Quarantine by Captain M. J. Holmes.) In a very complete study of the civil epidemic by N. H. Fairley (afterwards a major in the A.A.M.C.) and C. A. Stewart (subsequently a captain in the A.A.M.C.), published by the Commonwealth Quarantine Department, reference is made to a "pseudo-influenzal attack without definite meningitis."

[23] Figures showing general incidence of disease do not exist before this date, and those available are not sufficiently complete for statistical purposes.

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occurred among recruits in camps of training 693 deaths from the following causes:—

Non-infective causes.	No. of deaths.	Transmissible diseases.	No. of deaths.
Accidents and injuries	74	Gastro-intestinal— ..	12
Central nervous system—	11	Typhoid (9)	
Cerebral hæmorrhage (6)		Infective diarrhœa (2)	
Spinal organic (5)		Dysentery (1)	
Mental and moral— ..	20	Naso-pharyngeal and inspiratory— ..	498
Self-inflicted wounds (11)		Cerebro-spinal fever (256)	
Alcoholism (7)		Pneumonia (191)	
Insanity (2)		Pneumonia and broncho-pneumonia (29)	
Gastro-intestinal— ..	12	Measles and broncho-pneumonia (8)	
Appendicitis (4)		Influenza (7)	
Peritonitis (4)		Bronchitis (3)	
Obstruction (2)		Measles (1)	
Ulcer (2)		Pleurisy (1)	
Cardio-vascular— ..	13	Diphtheria (1)	
Cardiac failure (8)		Pharyngitis (1)	
Aneurysm (3)		Tuberculosis— ..	16
Myocarditis (1)		Tuberculosis of lung	
Valvular disease (1)		Septic infections— ..	12
Renal—	7	Septicæmia (7)	
Bright's disease		Abscess brain (2)	
Endocrine glands ..	1	Pulmonary abscess (2)	
Addison's disease		Osteomyelitis (1)	
Diatheses and degenerations— ..	5	Infective jaundice ..	1
Pernicious anæmia (3)			
Diabetes (1)			
Purpura (1)			
Physical causes— ..	2		
Sunstroke			
Tumours— ..	8		
Malignant			
Debility and impaired constitution— ..	1		
Simple anæmia			
	154		539

Treatment in camps

Treatment of the sick from camps was at first entirely through civil hospitals. It was not till January, 1915, that camp clearing hospitals were established; shortly afterwards isolation and contact camps were instituted. By June, 1915, "district base hospitals" had been formed in each State in connection with returning invalids, and these gradually took

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the place of the civil arrangements for sick among recruits. By May of 1916 there were in existence in Australia forty-two camps, in each of which was a camp clearing hospital, of from 20 up to 200 beds, which evacuated to the "base" hospitals situated in the capital cities.

Voyage of troops

In the period under review—January, 1915, to June, 1916—168,344 troops embarked for overseas. The arrangements for their transportation underwent no great change during this time.[24] A medical establishment was laid down for transports, and medical stores were standardised. In most transports outbreaks of inspiratory disease occurred, and many cases of venereal disease in all of them. An endeavour, made at the request of the Australian Intermediate Base Dépôt in Egypt, to control at the Australian end all kinds of shipborne infection by disembarkation at the last port of call in Australia, was half-hearted and correspondingly unsuccessful.[25]

We must now follow the stream which already had begun to flow in the other direction—from the front to Australia—and describe the circumstances of the return voyage, reception, and disposal of 13,416 who arrived in Australia as invalids.

Return voyage —invalids

The general arrangement for the transfer of invalids to Australia by transports and hospital ships has been sufficiently described. The delay in the provision of the latter, and certain important results arising therefrom, will be recalled.[26] This delay, and

[24] The developments in the transportation problem will be dealt with in *Vol. II.*

[25] In May an outbreak of cerebro-spinal meningitis occurred in a transport taking 6th Brigade troops who had left Broadmeadows just before the occurrence of visible infection there. It was not till the sixth case that the outbreak, which occurred in the Red Sea, was distinguished from sunstroke and correctly diagnosed. A similar experience is recorded in Australian camps.

[26] *See pp. 92 and 100. See also index Medical Transport.*

The effect of this delay, in determining the flow of serious cases to England, rather than to Australia, will be recalled (*see pp. 189 and 262*). Various considerations appear to have influenced the Commonwealth Department of Defence in its initial decision that—as submitted to the Minister by the Chief of the General Staff—it would probably be "better to temporarily erect cots in these (returning transports) rather than provide hospital ships." The most cogent was the expectation that "first class transports" would be coming to Australia each month, and could be fitted up suitably and provided with medical staff and nurses. Such vessels would be available for troops by the return voyage, whereas a hospital ship must return in ballast, or at best with medical personnel and stores only—and even this was doubtfully within the international conventions of war. The initial cost of a hospital ship was very great—though the recurring cost of fitting up the transports would have gone far towards providing better vessels than those ultimately selected for the hospital ships.

Two facts militated against the success of this policy, (1) that "first class transports fitted up" were not (as expected) regularly available, (2) the strong

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the limited accommodation ultimately provided, by deferring the transfer home of serious cases from overseas were, it is probable, important factors in determining the course of hospital development in Australia and the evolution of war surgery there.

Though the medical arrangements on the prepared transports lacked, at first, the refinements seen at a later period, a proportion even of serious cases returned to Australia without detriment by this means during 1915. The staffing of the selected vessels by "scratch" teams drawn from personnel available from the general hospitals in Egypt was continued throughout 1915. The beginning of 1916 was marked by an excellent piece of constructive administration which formed the basis for the solution of the great problem of sea transport of invalids to Australia. At the instance of the D.G.M.S. in Australia, the Minister authorised, in place of the improvised staffs, "sea transport sections," consisting of 1 medical officer, 7 nurses, a dispenser, a masseur, and 6 other ranks of the A.A.M.C., specially selected and trained and with standardised equipment and stores. Working as a team, these units were able to achieve in well-selected vessels results almost equal to those of the hospital ships. On January 28th No. 1 Sea Transport Section left for Egypt, and on March 19th returned in the transport *Demosthenes* in charge of 228 invalids. In January the D.G.M.S. informed the D.M.S., A.I.F., that provision was made for seven sections to be stationed at Suez to carry out there the preparation of the transports. Others were formed later, and when the route round The Cape was also adopted their disposal

The solution—"Sea transport sections"

feeling of the War Office—based on long experience of invaliding from India—against the transport of serious cases through the Red Sea in summer in any but "properly staffed and fitted up hospital ships."

The type of case cleared by the *Karoola* and *Kanowna* in their first voyages was not that intended by the policy embodied in the recommendations of Surgeon General Williams to the War Office, few of them being of a nature to require, under the "three months policy" (as put by Surgeon-Colonel Fetherston on his return to Australia), "that little extra which can only be supplied in a fully equipped hospital ship and is wanting in a hospital transport no matter how well it is equipped," but rather the permanently unfits that had accumulated whose return to Australia was for discharge, not for treatment. So much was this the case that the officer commanding the *Karoola* (Lieut.-Colonel R. Gordon Craig), in a strongly worded report, urged that the vessels would be more profitably employed at Gallipoli. *See also p. 377.*

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became general. During the period from January, 1915, to June, 1916, 9,162 sick and 4,254 wounded were returned as invalids to Australia.

In Australia—incoming stream of invalids

On the 6th of February, 1915, the Defence Department in Australia received from the Australian Intermediate Base Dépôt in Egypt information of the despatch of the *Kyarra* with invalids and unfits, and preparations were commenced (at first on a very small scale, with a special grant of only £500) for dealing with the inevitable wastage of war. Melbourne, as headquarters of the Defence Department, was constituted a medical base for casualties from overseas, and the staff of the 3rd Military District was made responsible for executive action. To form a "base hospital," a new police hospital near Defence headquarters was expanded by hutments to take 250 cases. "Osborne House" at Geelong[27] was taken over for 250 convalescents, and accommodation was provided, at the Prisoners of War Camp at Langwarrin in Victoria, for the cases of venereal disease.

Action was also taken to limit the obligations and liabilities of the Defence Department.[28] In the light of the extraordinary development of later years the terms of the order are interesting. All responsibility for medical attendance on invalided soldiers and for payment to them was to cease at the expiration of three months after return from overseas, or of six months after disablement in Australia: even in these cases responsibility was recognised only on proof that "such invalidism was not caused by any disease contracted prior to enlistment or of which the facts were concealed." A medical board would assess the condition "in time to grant compensation or have claim for pension[29] considered." Discharge from the army was to be given in the State of enlistment.

Invalids: treatment and pension rights

[27] Used for a time as the Royal Australian Naval College.

[28] The pensions experience of America in connection with her Civil War was at this time held up as an "awful example." It would rather appear to be an illustration of the inevitable.

[29] On 21 December, 1914, a War Pensions Act was passed by Parliament "to provide for the grant of pensions upon the death or incapacity of members of the

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The invalidings of sick from the camps in Egypt brought by the *Kyarra* and the two following transports (823 in all) were disposed of on these lines; but by the end of May it was recognised by the Defence Department that, despite the diversion of invalids to England from Egypt, it was full time that a comprehensive hospital scheme should be taken in hand. It was, in fact, overdue. Surgeon-General Williams, in an estimate of the "probable requirements," recommended the provision in each State of "hospital" and "convalescent" accommodation in the proportion of five and ten per cent respectively of the total number of troops embarked; and this was to be only a minimum "capable of rapid expansion." Parliamentary approval was given for a somewhat less ambitious scheme, the first cost of General Williams' scheme being estimated at £270,000. 4,100 beds were approved (including 1,600 convalescent), organised as "general" and "stationary" base hospitals; and these were to serve sick from camps, other than the infectious, in addition to invalids from overseas. The principle was adopted of making each State fully responsible for its own invalids. A military order of June 22nd laid down the establishment for general hospitals in each State and provided for their staffing by "home service" enlistment.[30]

Hospitals authorised

To limit the number of hospital beds, authority was given for attendance by medical practitioners in the soldier's home. A "receiving dépôt" was established in Melbourne, with a special officer in charge, and on July 1st a "Staff Officer for Invalids" was appointed in each State. There was available at this time in Australia hospital accommodation for 1,200; accommodation for 4,100 more was in course of preparation.

Defence Force of the Commonwealth and members of the Imperial Reserve Forces resident in Australia, whose death or incapacity results from their employment in connection with warlike operations."

In respect of the South African War, pensions were paid by the British "Chelsea Commissioners," but replacements of artificial limbs were paid for by Australia ("without prejudice" and with due delays).

[30] The following were authorised:—

	Military District.	Officers.	Nurses and Domestics.	Other ranks.
No. 4 A.G.H.	2nd	22	88	92
No. 5 A.G.H.	3rd	22	88	92
No. 6 A.G.H.	1st	8	24	62
No. 7 A.G.H.	4th	8	24	62
No. 8 A.G.H.	5th	8	24	62
No. 9 A.G.H.	6th	4	12	41

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The scheme was put to the test on July 17th, when the transport *Kyarra* disembarked at Melbourne the first wounded from Anzac, 56 in number, together with 242 sick and 103 venereals (23 patients having been put off in Western Australia). All cases reported fit to travel were at once sent to their respective States; others were held at the "base."

The first wounded

This first reception of wounded was not an unqualified success. In the 3rd Military District—the pivot on which depended the procedure in the 1st, 2nd, and 4th—the adjutant-general's branch failed to rise to the occasion. Medical arrangements, though adequate and carried out strictly in accordance with regulations, were not leavened by overplus of sentiment. To make matters worse, steps had not been taken to ensure co-operation by the public, who were "caught napping." Some unhappy recriminations resulted; but the outcome of the episode was the establishment of a system for reception and distribution which was fully adequate. This, indeed, was one of the most effective of the services in connection with the returned invalid. On the side of the Defence Department more exact co-ordination was ensured,[31] while on the part of the public the event brought to a head preparations which had hitherto—partly through lack of direction by the official medical service—been somewhat desultory.

The Defence Department, after refusing the proffered services of the St. John Ambulance Brigade,[32] had found itself unable to carry though its own scheme for voluntary aid detachments,[33] and in June the acting D.G.M.S. proposed to the Minister that the Australian Branch of the British Red Cross Society should be asked to take it over. The society was approached by the Minister for Defence two days before the *Kyarra* episode. That unfortunate *contretemps* led to an immediate outburst of public effort in this and other directions on behalf of the returning sick and wounded. Thereafter the welfare of the invalided soldier was in some

Voluntary Aid Societies

[31] For example, full reports were sent from the Australian Intermediate Base Depôt in Egypt by cable and from the first port of call in Australia by telegraph.

[32] An account of this peculiar decision has been given on *p. 30*.

[33] The abbreviation V.A.D. came colloquially to apply to the female members of such detachments.

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respects a matter demanding expert direction by the Defence Department rather than stimulation.[34] Voluntary efforts also co-operated with official action in the formation of "Red Cross auxiliary hospitals" supplementary to the official "auxiliary convalescent hospitals" established in each State. In view of the expected rapid influx when the embargo on the passage of cases through the Red Sea would be raised in August or September, hospital development was pressed by the Deputy-Director-General.[35]

Problems of reinstatement and repair

The history of the months that followed the first influx of invalids is one of endeavour, not always successful, to meet situations and problems, in some degree imperfectly foreseen, which followed each other with a rapidity that allowed little time for deliberation or study; and the duties in respect of invalids had to be met by a staff already occupied by the many similar problems of the camps. The increasing numbers and the variety of cases now arising soon compelled further revision of the arrangements for their disposal. The British War Office circular of July 3rd[36] was made in August the basis of detailed instructions by the Deputy-Director-General for the "control of invalids." These brought the Australian system closely into line with that in British "Commands," which were in many respects the analogue of the Australian "Military Districts." The chief feature of this order, and of its subsequent developments, was an increasing elaboration of procedure controlled by classification by permanent District Medical Boards. The important principle was now accepted that the invalid soldier was to be provided by the Defence Department with medical attendance "till well," and was to be discharged from the army only when "fit to earn his living or actually pensioned."

New responsibility—"till well"

[34] Apparently such direction was not always given, or accepted when offered.

[35] By the end of August, 1915, the following hospitals were established:—

	General hospitals.	Auxiliary hospitals.	Red Cross homes.	Total beds.
1st M.D.	1	4	—	450
2nd M.D.	1	3	6	950
3rd M.D.	2	4	3	1,400
4th M.D.	1	3	—	400
5th M.D.	1	4	—	450
6th M.D.	1	—	—	200

[36] *See p. 496.*

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At that stage the department was automatically discharged of any further responsibility or concern in the welfare of the soldier.[37] This was taken over by certain civil agencies, whose activities (of which more anon) were in each State linked with those of the medical service through the "Staff Officer for Invalids." This officer played an increasingly important part in the progress of the disabled soldier to civil life; in November he was associated with a "Staff Officer for Returned Soldiers." On his return from England on January 1st, Surgeon-General Fetherston, as Director-General, issued a preliminary set of revised "instructions for the control of invalids," the only change of importance being the abolition of the out-patient system, which had developed to unmanageable proportions,[38] and of home treatment. All invalids were henceforth treated in hospital, being given first a fortnight's leave—a concession which worked badly, and brought about many permanent deformities from undue delays in reporting for treatment.

An unwise provision

In April of 1916 the various instructions concerning invalids were consolidated in a booklet issued by the Defence Department. Various changes were made in procedure, embodying the observations made by the Director-General abroad. In particular, very necessary and overdue arrangements were made for facilitating the transfer—of invalids and of men returned "for change to Australia"[39]—from the medical to the military side of the Defence Department for the stage of convalescence. The procedure hitherto adopted for return to duty in cases from camps of training treated in hospital—namely, direct return to the lines without opportunity for convalescence and without furlough—had worked badly. In each military district there was now established a "details camp," which was to consist of a comfortable camp under combatant officers, with full and competent A.M.C. staff, and small A.M.C. hospital, where

"Return to duty" system in Australia

[37] Treatment in military hospitals was, however, arranged in special cases by "cancellation" of discharge.

[38] 1,200, for instance, had been daily attending the base hospital in the 3rd Military District.

[39] Up to June, 1916, some 5,000 officers and other ranks were returned for "change to Australia." A considerable proportion of these were at this time being re-absorbed into the 3rd Division.

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massage and minor treatment can be carried out. . . . Invalids (after discharge from hospital) will enter the hospital portion of the camp, at which beds will be provided. As soon as fit for light duty, they will be transferred to another class or company where very light duty is done . . . the work will gradually increase until they are certified fit for duty. . . . Every soldier in camp will be examined weekly or fortnightly by medical officers. When considered fit for full duty, will pass to ordinary camps.

The details camp took convalescents from overseas as well as from camps of training, but during treatment in general hospital the separation of overseas invalids from the sick who arrived from the camps of training was recommended to the districts as "generally advisable," and such procedure became a recognised policy. The effect of these various innovations was good, particularly the establishment of details camps, which filled the last-remaining gap in the chain of special units and establishments for dealing with invalids from overseas and with the local sick, and put on a permanently sound footing the routine procedure in respect of both.

Responsibility for repair

By this time it had also been recognised that the medical branch of the Defence Department could not absolve itself from a still wider responsibility in connection with the treatment and subsequent welfare of the invalided soldier. It was now provided that "during the period of the war" any soldier, pensioned or otherwise, might on production of his "discharge" certificate be treated at a military hospital for any injury or illness caused by service; and in respect of treatment in such hospitals it was laid down that

every effort should be made to place invalids in as favorable a position as possible as regards earning their own living . . . in all cases of total or partial incapacity the Staff Officer for Invalids will bring the case under the notice of the State Medical Committee of the District.

The evolution of the civil organisations whose activities bridged the passage of the disabled man from military care and discipline to the full resumption of civil life in Australia is, as elsewhere, of great interest. In Australia during the greater part of the war the body that undertook—in addition to the raising of recruits for the A.I.F.—responsibility for their re-establishment when discharged from the army, was

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the "Federal Parliamentary War Committee," a self-constituted but officially recognised body which came into existence in August, 1915, and was composed of members of both houses and parties of the Federal Parliament. It was represented in each State by a "War Council," composed of members of the State Parliament and representatives of civic interests. From the date of its formation this body took a direct concern in the fitting of the disabled soldier for civil avocation and also in the provision of opportunities for re-entering thereon. In the reinstatement of the recovered invalid the committee found itself[40] at the outset faced with the problem of "the soldier so injured as to be unable to resume his usual, or to adopt some other, peace calling," and particularly with the problem of the limbless. The question of "replacements" (artificial limbs, etc.) and of "educational facilities" to enable the injured man to follow his old avocation or qualify him for new ones, was brought up. The Defence Department, following the War Office policy, had, by a special decision in June, accepted responsibility for all replacements; but the wider obligation of re-training for the restoration of function after war injury or disease was considered to lie outside the province of the department. As it was put by the acting D.G.M.S. in June, 1915, in response to offers of help towards educating men in the effective use of surgical appliances:—"I think private enterprise will come in and provide a home for training cripples." Vocational training became definitely a responsibility outside the military system and fell in each State to the medical committees of its "War Council," a body which was advisory only and without facilities for putting its recommendations into effect.

"Replacements"

The problem of "replacements" fell into a similarly unsatisfactory position. The scientific and the mechanical aspects of the problem were improperly divorced. The relative responsibility of the limb-maker and the surgeon, and the thorny question of the type of limb, were faced independently in each State, and with results sometimes far from satisfactory.

[40] This is stated in its first report to the Minister for Defence.

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With the question of re-education and replacements, which are only in part "medical," and the more clearly professional but too often independent activities associated with "massage" and "electricity," which were at this time being increasingly exploited in the treatment of many and divers war disabilities, are intimately bound up the various surgical procedures commonly known as "orthopædic." In a previous chapter mention has been made of developments in England in this important branch of war treatment. In Australia the specialised problems presented by the after-treatment of modern war wounds were met by part-time civil surgeons enlisted in the home service. These, amid the engrossment of private practice in Australia, performed such operations as their experience and reading might dictate, the case thereafter often passing out of their sight. With the best intentions —and it is generally conceded that the profession in Australia was lacking neither in technical skill nor in the will to help—it was impossible under these conditions that justice should be done to a type of treatment which was exercising the undivided attention of the best surgeons in the medical services abroad. In March, 1916, the shortcomings in respect of provision for orthopædic treatment were the subject of report by an officer detailed by the Director-General to inspect all hospitals. It was recognised by Principal Medical Officers and by the civil profession that an unsatisfactory situation was developing in this important matter, in which the obligation was accentuated by the policy, constantly reiterated, of rapid return of all invalids to Australia, on the score of the expense of maintaining them in England. The chief factors militating against adequate provision were (*a*) the policy which made each State responsible for all its own invalids, (*b*) failure on the part of those responsible to make preparation "as if the war was going to last for ever," (*c*) failure on the part of the medical military authorities in Australia to appreciate the importance and difficulty of the problem and the extent of the responsibilities proper to the Government; it was not till a later period that the problem was faced in a comprehensive manner.

Reparative surgery—defective arrangements

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In the new scheme of disposal to the newly formed base hospitals in each State, special provision was made for certain types of invalids. Even thus early in the war the problem of the tubercular soldier began to reveal its appalling difficulties. These cases were segregated on the voyage, and arrangements were made that on arrival they were not to be sent to any military hospital but were to be at once removed to a State sanatorium. Another type requiring isolation and special treatment was the "mental" case. To permit of retention in special military hospitals without certification of insanity and thus to avoid inflicting the stigma so cruelly associated with mental disease—a relic of the days not long distant when "possession" by the devil was a theory of pathology—the State lunacy laws of Victoria, New South Wales, and Western Australia were relaxed. Cases from other States were sent to New South Wales or Victoria for twelve months, after which, if still unrecovered, they were transferred to their State Lunacy Department.[41] No special arrangement was at this time made for the treatment, on the lines then in evolution in England and on the continent, of the cases of traumatic neurasthenia and other psycho-neuroses which, under the unfortunate generic designation of "shell shock," were to give to the Great War its most characteristic medical feature.

Special invalids—tubercular and mental

In 1916 special arrangements were made for the treatment of cases of malaria at the Australian Institute of Tropical Medicine at Townsville in Queensland.

By June, 1916, 1,358 cases of venereal disease had arrived in Australia from overseas, and 6,796 cases had occurred in the camps. The former were at first concentrated at Langwarrin in Victoria; but, the assembling of large numbers having been found entirely unsatisfactory, it was arranged that all should be treated in their State of enlistment. With the departure of the dermatological hospital, return of the oversea cases to Australia was stopped.

Venereal disease

[41] This policy was founded on that obtaining in England.

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Special procedure was also laid down for convalescents from typhoid and paratyphoid—another class of unnecessary invalids. The multiplicity of bacteriological tests and re-examinations was such as to indicate no great belief in the efficacy of inoculation, and this was hardly a matter for wonder in view of the conditions under which it was being carried out in Australia at this time.

Enteric

By the end of 1915, 8,454 members of the A.I.F. had been returned to Australia, 7,536 of whom were a charge on the medical service. The distribution of cases was as follows:—

Totals

	Wounded.	Sick.	Venereal.
1st M.D.	272	401	144
2nd M.D.	785	1,148	449
3rd M.D.	791	1,311	449
4th M.D.	239	389	170
5th M.D.	275	340	103
6th M.D.	83	152	35
	2,445	3,741	1,350

In the case of venereals, however, this table merely shows the district to which they belonged, since the whole 1,350 were at that time concentrated for treatment in the 3rd Military District.

The first six months of 1916 saw a large influx of invalids, coinciding with the activities of the new D.M.S., A.I.F. During this time forty-four ships brought 1,809 wounded and 5,421 sick—the accumulation in Egypt and England of Gallipoli wastage, and representing the clearing of the board for the new and greater adventures of France and Palestine.

As if to offset the advantages of freedom from the physical risks and discomforts of "the front," it is always the failures, not the successes, that bring into public prominence the medical military administration at the base; the only relief from the scathe of public opprobrium is apt to be an unappreciative acceptance of any success as a result naturally to be expected. While in the record of medical administration in Australia there can be found evidence of errors and omissions which had their passing effect on the welfare of the Australian military forces abroad.

Critical retrospect and summary

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and while the clouds of future trouble are visible on the horizon, the period here under review is marked also by notable achievements for which due credit must be given to the personnel of the medical service[42] in Australia in general and to the central and district administrative departments in particular. With insufficient staff, without precedent or guidance from outside, and working in a constant half-light of knowledge of happenings overseas; in a turmoil of conflicting interests, and with a constant drag of financial restrictions, every demand for the force abroad had been met; and at the same time there had been built up at home an organisation which had proved adequate to cope with all the requirements of a nation transformed, in the brief course of a year, from a condition of profound peace to one of intense preparation for a prolonged war.

At the end of 1915 a critical and well-qualified observer in the civil medical profession felt impelled to "record," in *The Medical Journal of Australia,* his "admiration for the work that has been done successfully in Australia since the war began," that "has been conducted with a degree of success which there is reason to fear has been overshadowed by the criticism of the things which did go wrong," and that "consequently has not been sufficiently recognised."

Up to the end of June, 1916, of 1,104,700 male Australians between the ages of 18 and 45, approximately 400,000 had offered their services. Of these 301,813 had been passed as "fit": and of this number 50,019 were then in camp and approximately the same number had been discharged during the weeding-out process as "unfit for service." 200,225 had embarked for service overseas, of whom 9,583 had been killed or had died as the result of active service, and 17,190 had been returned to Australia, invalided or for other reasons.

In these first twenty-two months of the war the Australian medical service had grown to dimensions far exceeding the original expectations, and had been widely dispersed. At the end of June, 1916, the distribution of the A.I.F. overseas was as follows: in France, 94,514; in Egypt, Sinai, and Mesopotamia,

[42] The "medical service" is held to include, besides medical officers and other ranks of the A.A.M.C., the members of the nursing, dental, and pharmaceutical professions which form part of it; and to "co-opt" the Voluntary Aid Societies.

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39,033; *en route* from Australia, 11,405; the remainder (28,500) either in England or *en route* from Egypt to France. Of those embarked, 9,376 were A.A.M.C., who were now responsible, in addition to regimental and miscellaneous medical duties, for 10,490 "beds" in various theatres of war. The medical establishments for five infantry and one mounted divisions, together with three casualty clearing stations, two stationary and three general hospitals, were serving overseas in the A.I.F., and, in addition, 115 medical officers and 130 nurses had enlisted in the British service, and others were attached for duty to British hospitals.

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PART II

THE CAMPAIGN IN SINAI AND PALESTINE

by

COLONEL R. M. DOWNES, C.M.G., V.D.

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FOREWORD

I HAVE been asked to write a foreword to that part of the Australian Army Medical Corps History which deals with the Egyptian Expeditionary Force.

My work in Egypt and Palestine during the war brought me into close contact with some phases of that history. It began when I was A.D.M.S. of the 2nd Mounted Division in Cairo during the summer of 1915. It was an anxious time for all of us when the transports returned in quick succession from Gallipoli bringing down loads of sick and wounded almost as big as those they had just delivered in the pride of health. Of these a good proportion came from Anzac.

My next view of the A.A.M.C. was when the 1st Australian Light Horse Brigade and its field ambulance were attached to the Western Force of which I was the A.D.M.S. in Upper Egypt during the spring of 1916. We were employed in guarding the outposts of the Western Frontier against the threatened invasion by the Senussi. Many a pleasant visit I paid to the light horse outposts by the banks of the Bahr Jusef, on the margin of that great Libyan Desert which stretches for hundreds of miles to the west and was hitherto almost untraversed by Europeans. Sanitation was the text of our sermon in those days. The lesson of sanitary discipline —perhaps a little resented at first—was slowly sinking in, though it required some hard knocks of bitter experience to get it home. The keynote of my recollection of that time, as of the time to come, is the practical efficiency of the medical services with the Australian mounted troops.

In February, 1917, I was appointed A.D.M.S. of the newly-formed Imperial Mounted Division commanded by Major-General Hodgson. It consisted of two brigades of English yeomanry and two of Australian light horse, the 3rd and 4th. Each had its own field ambulance. The staff of the division was a mixed team, which not unnaturally took some shaking together; but between my medical colleague Major Cave of the A.A.M.C. and myself no adjustment was

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required; we pulled together from the first. While I was with the division we went through some strenuous times, including the first and second attempts at Gaza, and I learned to know and trust the resourceful stability of the A.A.M.C. in the field.

In the campaigns of the autumn of 1917 and the spring of 1918 my relations as D.D.M.S. of the XX Corps with the A.A.M.C. were chiefly through Colonel Downes, who was then the D.D.M.S. of the Desert Mounted Corps. With our respective corps constantly operating together and relieving one another, as at Beersheba, at Jerusalem, and in the Jordan Valley, we were frequently required to co-ordinate our work. We learned to rely on each other, and I, at any rate, always felt that I had only to ask, to receive help granted with the readiest goodwill. We lent one another motor ambulances or strings of ambulance camels as need or stress came to one or the other.

As D.M.S. during the final operation and till the end of the war, I enlarged my knowledge of the Australian Medical Services and its organisation. I was still in close touch with the Australian divisions of the Desert Mounted Corps, but I also had the opportunity of visiting and inspecting the Australian base hospitals at Port Said and at Cairo. Here, as in the field, the salient feature was ready efficiency. The medical officers were keen on their work, pleased and anxious to avail themselves of any facilities offered in the way of special educational courses organised for them. The Australian soldier always showed a real pride in his own hospitals, and had an almost sentimental veneration for his own nursing service.

To one like myself, who had no previous firsthand knowledge of any of our colonies, it was a stimulating education to note the different point of view from which the medical problems of the war were approached by our colleagues from the other side of the world, who, though not always willing to accept without question the hereditary experience of the regular service, were not long as a rule in absorbing the best of it.

I must pay a word of tribute to the Australian Red Cross which gave such able assistance to the medical service. The

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function of the Red Cross in war is to anticipate red-tape, to provide all those little accessories which make life comfortable to a sick or wounded man, but which have not been recognised by the state as part of the paraphernalia of war. This the Australian Red Cross did most effectually.

In looking back to the time of the war, one's happiest memories are those of the friends that one made and worked with, and, among mine, no small number belonged to the A.A.M.C.

RICHARD H. LUCE, Major-General
(late D.M.S. Egyptian Expeditionary Force).

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PREFACE

THE campaign in which the Australian troops in the Egyptian Expeditionary Force took part presented many features differing considerably from those prevailing in France. These concerned chiefly the field units, and were due to a variety of factors; to the nature of the terrain, which altered as the campaign progressed; to the character of the warfare, which, partly in consequence of the terrain, was of a far more open nature than in France and involved sudden and rapid moves with comparatively little trench-warfare; to the fact that all the Australian troops were light horse or (later) cavalry, with their associated mounted arms; to the special nature of the climate; and to the presence of a variety of serious endemic diseases of a kind almost unknown in France.

The special purpose of this history being a consideration of the problems that faced the Australian Medical Services, attention is in this part paid chiefly to the work of the services in the field; and as the campaigns—and particularly the rôle of the light horse—involved so much movement, the narrative is inevitably concerned in a large measure with tactical rather than with administrative problems. The special problems confronting the few Australian base medical units in Egypt did not differ materially from those of corresponding units of the main part of the A.I.F., which are fully considered elsewhere. A further reason for paying particular attention to the medical services in the field is the likelihood that military operations in Australia would resemble more closely those carried on in Sinai and Palestine than the trench-warfare of France. Prior to the Great War no one had any real knowledge of medical arrangements on modern lines in open cavalry warfare; nor, up to the present, has any adequate account of them appeared in textbook form since the close of the Great War. Some important administrative problems, however, cropped up which were dissimilar to those in England and France, and which are therefore of interest as a contrast.

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It is a particularly unfortunate fact that the written records for the year 1916 are poor, since in consequence of this and the long interval that has elapsed since the events took place much that is of interest, in a part of the campaign which was so peculiarly associated with the Australian and New Zealand troops, has been lost.

R. M. D.

MELBOURNE,
31st March, 1930.

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SECTION I—THE CAMPAIGN IN THE SINAI PENINSULA

CHAPTER I

THE OPENING

THE tide of war that swept the Mediterranean Expeditionary Force back in defeat to Egypt, and left the Turk free to follow it to the Suez Canal, had a profound influence on the future of the Australian Imperial Force. The infantry and light horse, which hitherto—in somewhat unnatural uniformity—had fought side by side, were now to be separated by all that sunders west from east, each serving where most required. Though this severance was administratively inconvenient, and from a narrow "national" point of view in some quarters deplored, the A.I.F. and the Empire were the better for it. The light horse, a typically Australian arm, was given in Sinai and Palestine opportunities such as could have been found in no other sphere of action. In these opportunities and in the developments brought about thereby the medical service fully participated. From the outset experiments were made and lessons learned in organisation, equipment, and disposition, which greatly enhanced the capacity of the medical service for carrying out its rôle with mounted troops, and especially in desert warfare.

* * *

The Egyptian Expeditionary Force

In January, 1916, the British and Australian troops concentrated in Egypt comprised fourteen divisions, and were regarded by the War Council as an Imperial strategic reserve. The control of this force was at first, as has already been stated,[1] divided between three authorities, but on March 19th the three independent commands were merged into one, Sir Archibald Murray being appointed to command an Egyptian Expeditionary Force (comprising the M.E.F.

[1] *See p. 488.*

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and the Force in Egypt), with General Altham as Inspector-General of Communications. General Maxwell returned to England. The Levant Base was abolished. The administration of the medical service also was centralised under Surgeon-General Bedford[2] as D.M.S., E.E.F., with Colonel Keble as A.D.M.S., and Colonel C. H. Melville as A.D.M.S. in charge of sanitation.

The strategical situation in the East was briefly as follows. A Turkish force, estimated at 250,000,[3] was concentrated in Southern Syria. This force on the eastern frontier constituted a threat to the Suez Canal, with all the serious consequences that would follow a blocking of this highway to India and the Far East. From the moment that Turkey entered the war the winning of Egypt had been one of her prime objectives, and directly or indirectly her operations had encompassed that country on all sides, while secret agents perpetually sought to foment trouble from within. On the west, from the oases of the Libyan Desert, Arab tribes sustained by Turkish gold and munitions, and urged by their religion and an inborn love of raiding and looting, made repeated inroads along the coast and against the Nile Valley farther south. In the Soudan the feuds of past years were revived. On the east the

The Turkish threat

The Middle East

[2] In April, Surg.-Gen. Maher succeeded Surg.-Gen. Bedford.

[3] This was, in fact, a large over-estimate.

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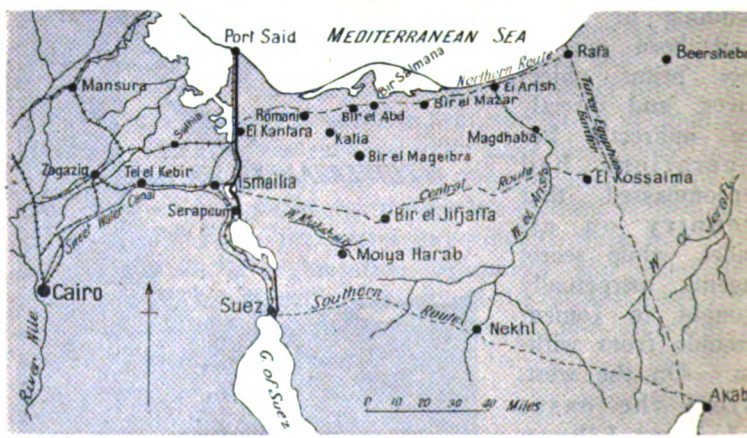
British commander-in-chief, Sir Archibald Murray, had taken over a defensive scheme designed after Lord Kitchener's visit and put into effect by General Maxwell. This provided for an outer defence line some six miles east of the Suez Canal, an inner line some two-and-a-half miles behind it, and a third line consisting of works covering bridge-heads on the Canal itself. For administrative purposes the Canal defences were divided into three sections, namely,

Canal Defence Scheme

No. 1 Section,	Headquarters at	Suez	IX Corps.
No. 2	,,	Ismailia	I Anzac Corps.
No. 3	,,	Port Said	XV Corps.

To appreciate this campaign, it may be recalled that Egypt is separated politically from Palestine by a boundary line running from Rafa on the Mediterranean coast in a southerly direction to the head of the Gulf of Akaba. West of this line,



and included in the province of Egypt, lies the Sinai Peninsula, the greatest military obstacle guarding the Suez Canal, scene of repeated warring exploits down the ages, and now once more to witness conflict between Christian and Ottoman.

The Sinai Peninsula may be described as pentagonal in shape, its northern portion being a rectangle and its southern portion a triangle with its base on the northern portion, its western side on the Gulf of Suez, its eastern on the Gulf of Akaba.

Sinai

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The rectangular portion, which alone concerns this history, lies between the Suez Canal on the west and Palestine on the east, with its northern side washed by the Mediterranean. At the southern extremity of the Suez Canal lies the town of Suez, where ends one of the three roads crossing the peninsula—that followed by Moses in the Wanderings. About the middle of the Canal is picturesque Ismailia, where the central road across the peninsula begins. At the Mediterannean entrance is Port Said, while midway between that place and Ismailia is the small village El Kantara (The Crossing), whence leads the "oldest road in the world"—the Darb es Sultani (Royal Road), traversed successively through the centuries by armies of Egyptians, Babylonians, Assyrians, Persians, Greeks, Romans, Crusaders, Saracens, and by Napoleon. At Ismailia the Sweet-water Canal from the Nile divides, its arms extending along the west side of the Canal northwards to Suez and southwards to Port Said. The greater part of the peninsula is rough stony desert, with steep and wild mountains in the south, and almost waterless. On the central road water is found in wells at Jifjafa, rock cisterns at Moiya Harab, and pools and cisterns on the Wady um Muksheib, which fill up after the winter rains.

The scene of the Campaign

The northernmost portion of the peninsula, the area in which almost the whole of the desert campaign was carried out, is soft sandy desert interspersed with considerable water-bearing areas. East of the northern end of the Suez Canal, adjoining the Mediterranean coast, a considerable tract of desert known as the Plain of Tina lies below sea level. Early in 1915 this was flooded from the Canal to form an obstacle to the enemy. Beyond this is encountered an area of sand-dunes, extending nearly to Rafa and, as a narrow coastal strip, far into Palestine. From a military point of view the sand-dunes were an important feature, acting as obstacles to marching troops. As a general rule they run from north-west to south-east, with steep north-eastern and more sloping south-western sides. Some of the dunes rise to almost 400 feet, but the sand is very soft and their shape is perpetually changing under the influence of the strong winds that blow at different periods of the year; in any fresh breeze a

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continuous spray of sand blows off their edges, which as a result become rampart-like. Horses grew very expert in descending their almost perpendicular slopes, often sinking to their hocks in the soft sand, and though falls were far from uncommon, they rarely resulted in damage to horse or rider.

At the foot of many of the dunes were the areas known as *hods*, containing date-palms, which might be either numbered in thousands or represented only by a few decaying stumps; in many of these patches were found wells (Arabic *Bir*) made by the Bedouins, and sometimes lined with palm-trunks and of great age. In many other *hods* water was obtainable by digging or boring. Sometimes there would be no trees, but a discolouration of the sand would indicate the presence of water. The water in the wells was always brackish, but its salinity varied greatly in different wells and even in the same wells at different times.

An area containing wells extends from Dueidar, 15 miles from Kantara along the Darb es Sultani, to Salmana at 52 miles; from this place to Bir el Mazar, at 75 miles, there is little water, and beyond the Mazar area none, till El Arish is reached on the coast at 95 miles from Kantara. From Port Said a narrow strip of sand ran between the sea and the inundation to Mahemdia, where may be seen the ruins of ancient Gercha. East of Mahemdia is a large irregular depression stretching to the vicinity of El Arish—the Sabkhet el Bardawil, called after King Baldwin I of Jerusalem. It is a boggy lagoon partly covered by shallow water and, being liable to inundations, forms a considerable military obstacle.

The situation changes

By the middle of February, while there had been no sign of enemy advance, the defeat of the Turks at Erzerum by the Russians rendered an attack in force on the Canal unlikely; and information of a decrease in the Turkish garrisons in Syria led to a calculation that no more than 60,000 men could be available for such an attack. In consequence, a large proportion (some ten divisions of infantry) of the British troops in Egypt left for other theatres of war, including Headquarters of IX and XV British and I Anzac Corps. By March the diminution of the water-supply in the Sinai Peninsula, caused by

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summer evaporation, rendered it improbable that any force in excess of 50,000 could cross the desert. The plans of the commander-in-chief were accordingly modified. In his view the passive defence of the Suez Canal as originally planned was wasteful, and the true strategic defence of Egypt lay in the occupation of the oases about Romani and Katia, with the ultimate objective of a mobile force at El Arish—the key-point of an enemy attack on Egypt. The force required for the defence of Egypt in this manner was estimated at five divisions of infantry and four mounted brigades. The preliminary step in this plan was the occupation of the Katia area, for which purpose the construction of a railway and the laying of a pipe-line carrying water from the Nile would be essential. To this plan the War Office gave its approval.

Such was the military situation. The Australian and New Zealand formations left in Egypt when the main body of the A.I.F. left for France were three light horse brigades, three detached light horse regiments, and the New Zealand Mounted Rifles Brigade.[4] Included in the auxiliary units and detachments of maintenance of these troops were the 1st, 2nd, and 3rd Light Horse Field Ambulances, the New Zealand Mounted Field Ambulance, the No. 2 Australian Stationary Hospital, and No. 3 Australian General Hospital. The four ambulances, after returning from Gallipoli to their horses and transport vehicles, had re-equipped, re-organised, and once more taken up their rôle of mounted units. The 1st Light Horse Field Ambulance was with its brigade in Upper Egypt; the 2nd and 3rd were on the Suez Canal at Serapeum, and the New Zealand Mounted Field Ambulance close by at Ferry Post, on the eastern side of the Canal opposite Ismailia.

On March 16th, the Australian and New Zealand Mounted Division (usually known as the "Anzac Mounted Division") was formed from the 1st, 2nd, and 3rd Light Horse and the New Zealand Mounted Rifles Brigades, and was placed under the command of Major-General H. G. Chauvel, who opened his headquarters at Serapeum in No. 2 Section of the Suez Canal Defences. The divisional staff included as A.D.M.S., Lieutenant-Colonel R. M. Downes, who had been transferred

[4] A British unit, the Camel Corps, however, contained a preponderance of men of the A.I.F. (*see p. 588n*).

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thither from the command of the 3rd Light Horse Field Ambulance, and, as D.A.D.M.S., Captain C. E. Hercus of the New Zealand Mounted Field Ambulance.[5]

Preliminary operations—raids from the Canal

Three weeks later, leaving behind at Serapeum the 3rd Light Horse Brigade and ambulance, the 2nd Light Horse and New Zealand Mounted Rifles Brigades moved to Salhia, a picturesque Arab town twenty miles west of the Suez Canal on the edge of the Nile delta. From Serapeum the light horse took part in two long-distance raids, carried out with the object of destroying the water-supply on the central road across the desert of Sinai, the route by which the Turks had made their first attack on the Canal in February of 1915. On March 21st a detachment of the 8th Light Horse Regiment and Bikanir Camel Corps, accompanied by one medical officer and an orderly, marched seventy-two miles in thirty-seven hours over desert sand from the Canal to the Wady um Muksheib and Moiya Harab (water cisterns), which were found unoccupied. On April 11th a "column"[6] composed of one squadron of the 9th Light Horse Regiment, with detachments of camel corps, engineers, and signallers, and accompanied by a medical officer with two sandcarts and five camels with cacolets[7] capable of carrying sixteen wounded, raided Jifjafa, captured the Turkish post of thirty-five men, and destroyed the pumping plant for the wells. A distance of 120 miles was covered in three and a half days, the only casualty being one man killed.[8]

Advance to Romani

On Sunday April 23rd, St. George's Day, there began, so far as the Anzac Mounted Division was concerned, the remarkable campaign which ended in clearing the Turk and his German and Austrian allies from Egypt, Palestine, and Syria up

[5] Captain (later Lieut.-Col.) Hercus retained this position until April, 1919, when he was appointed A.D.M.S. This distinguished officer came to exercise a great influence on the medical arrangements during the campaign, especially in connection with sanitation. His appointment was one of many benefits that accrued from the close association of the New Zealand force with the Australians.

[6] In March "mobile columns," with camel transport and camel convoys, were formed in each section of the Canal Defences.

[7] *See pp. 562-3.*

[8] These raids were not the first engagements of the light horse, as such, with the enemy. In Nov. 1915 a composite regiment formed from the details left in the light horse camps in Egypt, with medical details, formed part of the column under Maj.-Gen. A. Wallace sent against the Senussi from Mersa Matruh on the coast west of Alexandria.

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to the Taurus Mountains. Little inkling of the part they were to play in this campaign, and of the events that lay before them, could have entered the minds of the Australian light horsemen when, preceded on the 22nd by its 5th Regiment, the 2nd Light Horse Brigade moved out from Salhia—Napoleon's starting-point for his less fortunate Syrian expedition—and marched to Kantara—now headquarters of No. 3 Section of the Canal Defences and advanced base—to be followed the same night, in response to a sudden and unexpected order, by the New Zealand Mounted Rifles Brigade. This formation, together with divisional headquarters and troops, was on the march in one-and-a-half hours after the receipt of the order to move.

The reason for this precipitate move was a disaster suffered by part of the 5th Mounted (Yeomanry) Brigade, which had been surprised by Turks in a fog when covering the construction of the strategic railway towards Katia, thirty miles from the Canal.[9] On the 24th the 2nd Light Horse Brigade marched on to Romani, the British brigade's former headquarters, and reoccupied it. This oasis is situated not far south of the Mediterranean and twenty-five miles east of the Canal, on the route followed later by the strategic railway (of which only nineteen miles had yet been laid) and the pipe-line. Railhead at this time lay close to the ruins of the historic Roman town of Pelusium, in ancient times known as the "key to Egypt." Four days after the entry of the 2nd Light Horse and New Zealand Brigades into the Sinai Peninsula, the 2nd Light Horse and New Zealand Mounted Field Ambulances arrived at Kantara and marched at once to Romani to rejoin their respective brigades.

The medical problem: mobility

The medical service of the light horse was now faced, practically for the first time, with the greatest of the medical problems arising in desert warfare, namely, that of the transport of wounded, and their attendant medical units, through heavy sand. This problem had been common to

[9] The 5th Light Horse Regiment was hurried on to assist another post, held by the Royal Scots, at Dueidar. This post resisted the attack, and the retiring enemy was pursued and damaged by the light horse.

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all desert campaigns in modern times, and most of the devices employed for this purpose were of previous invention. Others appear to have been employed for the first time in this campaign.

Regimental establishment

Its first line, the regimental medical establishment of a light horse regiment, comprised a medical officer with two orderlies and three medical personnel for "water duties"; all were mounted. To carry his medical stores and stretchers, the official "Maltese" cart was replaced by camels or pack-horses. Twelve troopers were allotted to him as regimental stretcher-bearers.[10]

A light horse field ambulance

The second line was the light horse field ambulance,[11] which at this time had a strength of 124 personnel of all ranks, including six medical officers, and was organised in two sections, "A" and "B," each consisting of three divisions—bearer, tent, and transport. The organisation, equipment, and mode of employment of a field ambulance in the British Army, as laid down in military manuals, has been described elsewhere.[12] It is, however, desirable to indicate certain important differences in connection with each of these which pertained to a mounted field ambulance or were evolved to meet the special circumstances and exigencies of a warfare perhaps unique in the variety and complexity of its requirements — a warfare wherein the most primitive devices of mankind were to be found supporting the most up-to-date scientific achievements of modern civilisation. In particular it is necessary to describe in sufficient detail certain special means for the transport of sick and wounded. In doing so it will be necessary in some respect to forestall events.

[10] In the textbook teaching and in the authorised establishment for each cavalry regiment twelve men were trained in first-aid, but were not described as stretcher-bearers. In concentrated operations it was enjoined that they should function as dismounted stretcher-bearers, and in that capacity they were expected to improvise methods of conveyance back to the ambulance waggons.

[11] The Australian light horse field ambulance corresponds to the British cavalry field ambulance.

[12] *See pp. 8 and 24.*

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The essential quality of light horse as compared with infantry is its mobility. To carry out its functions efficiently, a medical unit attached to a light horse formation must have a similar capacity. To permit of this, certain departures from the constitution of a field ambulance already existed in the Australian light horse medical units. In particular, as a result of the foresight and persistence of Surgeon-General Williams, all the light horse ambulance stretcher-bearers (numbering thirty-two) were mounted on horses, and these were provided for in Australian establishments. In this respect Australian light horse field ambulances differed both from those of Great Britain and from those of the other Dominions, in which all personnel except officers and warrant officers were unmounted. Considerable difference of opinion had existed as to the necessity for this arrangement: orders had even been issued at the beginning of 1915 for the withdrawal of the horses. At an early period of the present campaign, however, it became apparent that, at least as regards desert country, Surgeon-General Williams had been right: indeed an order was issued by the G.O.C. Anzac Mounted Division that no one was to go out, even on reconnaissance, who did not possess his own individual means of transport. For the bearers of the New Zealand Mounted Field Ambulance camels had been provided but were found too slow and too conspicuous, and its establishment was soon altered to provide horses or mules for all its bearers. This policy was continued throughout the campaign, and was also adopted for the field ambulances of the British mounted brigades. With regard to the personnel of the tent divisions, the teaching prior to the war had been that they should march on foot or be carried in ambulance waggons when these were not otherwise occupied. But since in the soft sand of the Sinai Desert marching was impossible, it was soon found that few tent division personnel could accompany the ambulance in reconnaissance or raid; those that did so had to rely on the horses of the wounded to maintain mobility when the vehicles on which they had travelled were occupied by wounded. It became necessary to mount all personnel, and, later still in the campaign, when shortage of transport animals

Mounted bearers

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of all kinds made it impossible to mount more than one-half of the tent divisions, the dismounted half ("immobile section") was given a special function and the system of evacuation modified accordingly.[13]

Transport: sandcarts

For the transport of wounded men and medical stores, sandcarts and camels were provided. Sandcarts are two-wheeled vehicles with metal tyres, six inches wide, similar in principle to the carts used for the sandy country in Upper Egypt. They were designed to carry two stretchers; but this was soon found uneconomical, as in heavy sand four horses were necessary for each. Stretchers were therefore done away with, and the normal load for each cart became three lying-down patients. But in times of emergency many more were carried, and on occasion as many as twelve were crowded into one sandcart.[14] These vehicles could be moved more quickly than the ambulance waggons when under fire; were less conspicuous; could be taken into rough and narrow places, such as the beds of wadys, inaccessible to the waggons; and were very handy for the collection of isolated wounded on the line of march.[15] The chief defect was that, there being no room for a driver's seat on the cart, postillion driving was necessary, and this, while it gave greater control over the team, unduly fatigued the near-side horse, on which the driver was mounted.

Camels

Camels were also provided for carrying wounded, as well as for transport of medical personnel and stores. The wounded were carried in "cacolets," made for either sitting or lying carriage. The sitting cacolet was an adaptation of the cacolet used on mules in Algiers by the French; the lying cacolet (under the name of "kojawah") had long been in use in

[13] The mounting of bearers has not, however, been provided for in the post war reorganisation of the British Army Medical Service, on which the Australian is now based.

[14] The sandcarts provided for desert warfare remained with some of the ambulances till the end of the campaign, and, with their broad tyres removed, were of great use in the hilly country encountered later in Palestine.

[15] Experiments were made during the desert campaign to see whether camels harnessed to sandcarts would allow of any saving in animals. It was found that they would do this work, as they had done experimentally with guns, but that they were too slow and did not pull a load equal to that pulled by the same number of horses. The sandcarts originally provided had had very poor metal used in their construction, and were of faulty design; but as the campaign progressed these defects were remedied.

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76. Palm hods near Katia, Sinai Desert

Lent by Air Mechanic R. L. Sillett, No. 1 Sqn., A.F.C.
Aust. War Memorial Collection No. J2622.

77. An Australian light horse field ambulance

Photographed in November 1918.

Aust. War Memorial Official Photo. No. B448.

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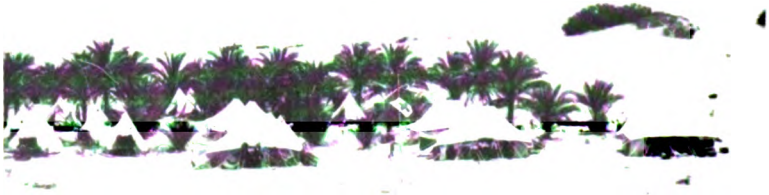
78. THREE TYPES OF CAMEL CACOLET USED IN EGYPT AND PALESTINE

Lent by Driver A. F. Gouldsmith, 3rd L.H. Fld. Amb.
Aust. War Memorial Collection No. B2517.



79. AN AUSTRALIAN LIGHT HORSE FIELD AMBULANCE CAMPED IN THE SINAI DESERT, 1916

Lent by Pte A. H. Carson, 1st L.H. Fld. Amb
Aust. War Memorial Collection No. A1651.

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India. To each camel saddle—which consisted of two stuffed leather pads joined to form a V—a pair of cacolets was attached. A sitting cacolet consists of a seat with a back, arm-rests, a strap in front to prevent the patient falling out, and a foot-rest. The patients, one on either side, face the camel's head. Lying cacolets were of various types. The original kojawahs consisted of two oblong boxes, resembling coffins, rigidly joined together and fixed to the saddle—perhaps the most uncomfortable form of wounded transport ever devised. The patient lay flat, with his head towards that of the camel, and was put into the kojawah when the camel was squatting on the ground—"barraking," as it is technically called. The camel always rises hind legs first, with the result that the patient's first impression that he is falling out on to his head is quickly corrected when the forward end of the kojawah is jerked up as the camel rises on to his forelegs. When the beast moves off, the patient is thrown and bumped about to a degree sufficient, in many cases, to produce nausea and vomiting. To a man with a painful wound (such as a fractured thigh) the torture of a long trip in one of these contrivances was extreme. Personal experience soon satisfied the senior Australian medical officers of the hopelessness of the kojawah, and the Anzac Mounted Division ambulances avoided drawing any from the ordnance dépôts, though for a time they were used in some ambulances of the force. Other forms of lying cacolet were somewhat less objectionable, but all were very uncomfortable, some indeed dangerous, it being not unknown for wounded men to roll out of them. In one of the early engagements of the desert campaign[16] a number of Turkish cacolets were captured, and these were found to be a great improvement on any of our patterns, being constructed so that the patient rode in a semi-recumbent position; they had also a sunshade attached. Copies of these cacolets were afterwards made, and eventually they were the only type used.[17] But even the Turkish cacolet meant a miserable journey for a wounded man. A camel takes long slow strides, with an irregular swaying movement; his full normal load was calculated at 300 lb., so that more

[16] The Battle of Romani.

[17] The efforts of the constructors to improve on the Turkish pattern resulted in a less efficient article.

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often than not two patients, together with the saddle and cacolets, overloaded him, and, if the men were of unequal weight, the heavier side sagged downwards and the lighter worked upwards. The average marching rate of a loaded camel was two-and-a-half miles an hour, and wounded men had sometimes to travel as much as twenty-five miles in this way before they could be made even temporarily comfortable. To the pain and shock of their wounds were usually added the discomforts of heat, flies, and the smell and grunts of the camel.

As there were no vehicles other than the sandcarts that could be employed in the soft sand, camels were used in the desert campaign to carry the ambulance equipment of surgical instruments, splints, drugs, dressings, food, and tents. As a rule they marched independently of the rest of the ambulance: but considering their slow rate of marching—for they cannot be hurried—it was surprising how rarely any real difficulty was caused by their late arrival with the equipment. Camels were also used to mount those of the ambulance personnel for whom no horses were provided.

Sand-sledges

In contrast to this distressing mode of conveyance by camel there was, fortunately, evolved one device which afforded probably the most comfortable known form of land transport for wounded. This was the sledge. As soon as the ambulances reached the Suez Canal, experiments were made to devise a suitable sand-sledge, and the very first type made was for a long time the best in use. It consisted of a sheet of corrugated iron with the front portion bent up at an angle, while a wooden framework was attached to the rest of it; on this framework a stretcher was laid and fixed. For short distances one horse was sufficient, but as a rule two were necessary. Attempts were made to diminish the friction by providing runners, as in snow sleighs, but if the runners were too wide or too narrow the sledges were not satisfactory. It fell to the New Zealand Mounted Field Ambulance to design the sledge which became a standard pattern. It had, as its essentials, wooden runners about six inches in width, curved up in front and protected from wear by strips of

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hoop-iron.[18] At first the sledges were made in the ambulances themselves; later the engineers, so far as they had time, turned out standard sledges, but these, being a new invention (though included in the authorised establishment for an ambulance), were never supplied by the ordnance authorities and had to be obtained as a favour.[19] Over sand a sledge moves with great smoothness and absence of discomfort; with a hood attached to the head of the stretcher as a protection from the sun it was a most satisfactory device. As so few were in use by each ambulance, they were reserved for seriously wounded and unconscious patients.[20] They were used throughout the desert campaign, but when firmer country was reached their tendency to cut the telephone lines laid along the ground led to the issue of a peremptory order for their disuse.

L.H. Fld. Amb.: organisation and disposal

In May, 1916, the transport of a light horse or mounted field ambulance consisted of 6 sandcarts, 6 sledges, 15 pairs of lying and 2 of sitting cacolets, making altogether a normal capacity for fifty-two wounded. Sandcarts were soon increased to 9. sledges reduced to 4, and sitting cacolets increased to 10, making, with the 15 lying cacolets, a normal carrying capacity for seventy-two patients.

The normal proportion of light horse field ambulances was one per brigade: the rôle played by these in the formations of which they were part may now be succinctly described. When forming part of a mounted division, the ambulances were administered as divisional troops and came under the orders of the Assistant-Director of Medical Services, who was attached to divisional headquarters. When operating with a detached brigade, the ambulance was under the direct orders of the brigade commander; and, since the method of employment of mounted troops often involves the detachment of a brigade with its ambulance, a light horse medical unit functions as an integral part of the brigade more often than does a field ambulance with the infantry. The Australian

[18] These strips were taken from the bundles of tibbin (a compressed hay used as fodder).

[19] This fact is mentioned as an example of the official conservatism with which new demands by the medical service were sometimes met. As a set-off, the opportunity is welcomed of recording the readiness with which at all times the engineers came to the help of the medical service.

[20] Sledges made for two stretchers were found unsatisfactory.

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light horse field ambulances, which in Gallipoli had been employed as divisional troops, had on their return to Egypt all formed part of scattered and detached brigades, and it was not until the 2nd Light Horse and New Zealand Brigades were concentrated at Salhia in the Anzac Mounted Division —or even when some months later the 3rd Australian Light Horse Brigade joined the division—that the more economic grouping of the ambulances as divisional units could again be entered upon. Actually, as a matter of convenience if not of necessity, throughout almost all the campaign that portion of each mounted field ambulance which was sufficiently mobile to move with mounted troops was permanently attached to its own brigade and moved with it: the less mobile portion was employed as a divisional unit—or later as a corps unit—and, according to circumstances, acted either in conjunction with or separately from the remainder of the ambulance. It is therefore hardly surprising that some brigade commanders failed to realise that the organisation for a mounted division definitely included the field ambulances as divisional troops: on a number of occasions it was necessary to insist firmly on such recognition—the lack of which caused friction, confusion, and, at least in one instance, serious results.

Partition according to mobility

The essential functions of a light horse field ambulance are the immediate treatment of sick and wounded received from the regiments for a short period (normally not more than forty-eight hours) until their return to duty or conveyance to the casualty clearing station. Their bearer divisions are responsible for the conveyance of sick and wounded from the regimental medical establishments which collect the wounded in the field. In the Sinai Desert very little carrying fell to the ambulance stretcher-bearers, the nature of the country in most cases allowing the sandcarts and sledges to be brought up under cover very close to the regimental collecting or aid posts. As will become apparent later, a contributing factor to this arrangement was the difficulty experienced by reason of the type of stretchers available. The ambulance bearers were, however, kept fully occupied in

Function and methods

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maintaining communications, attending wounded in transit, and performing duties at the dressing-station. From the regimental aid-posts or front line the wounded were transported in the sandcarts or sledges to an advanced dressing-station, which would consist of an operating tent and one or two bell tents, placed, when possible, out of view of the enemy and perhaps a mile from the firing line. It would be manned by the personnel of one tent sub-division—or as many of its men as could be transported—with some of the mounted bearers; its equipment was of the simplest, but sufficient to provide at least hot drinks.

From the advanced dressing-station camels were for the most part used for the next stage, which might be to the non-mobile portion of the light horse field ambulance five to twelve miles in the rear, or else to a field ambulance of an infantry division or even to railhead. Eventually the wounded would come by rail to a casualty clearing station or stationary hospital on the lines of communication, whence ambulance trains or canal boats carried them to general hospitals situated in various parts of Egypt.

Such, in brief, was what may be termed the normal scheme of evacuation. The developments in organisation and alteration in the means of transport brought about by changes in the local or strategical conditions will appear as this narrative is pursued.

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CHAPTER II

THE DEFENCE OF THE SUEZ CANAL. ROMANI

THE Turkish threat against Egypt, though much diminished as the dry season advanced, issued in a strong but unsuccessful attack on the British position at Romani in Sinai. This was followed by a vigorous counter-offensive. The medical service with the light horse was faced during these operations by new problems of mobility and communication; some defects in system and in equipment were discovered and steps taken to remedy them.

* * *

At the end of April, 1916, No. 3 Section of the Canal Defences was garrisoned by the following troops:—The 52nd Division, the 1st "Dismounted" Brigade, and 5th British Mounted Brigade at Kantara (the headquarters of the section[1]); the 11th Division (which shortly afterwards left for France) farther south; the Anzac Mounted Division, with headquarters at "Hill 40." Of the last-named, the 2nd Light Horse Brigade was at Romani, and the New Zealand Mounted Rifles Brigade at "Hill 70."[2]

Romani

Romani, the centre of military activity during the next four months, was a strong natural position, escarped by steep sand-dunes on the east, and surrounding a few palm *hods* and wells of brackish water. This being the advanced camp of the force, the railway was soon pushed forward to it, and as rapidly as possible the position

[1] Each section was under the command of a general officer, whose staff included an administrative medical officer (D.D.M.S. or A.D.M.S.).

[2] The 1st L.H. Bde. was still in Upper Egypt; the 3rd was in No. 2 Section at Serapeum.

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was fortified along its eastern edge by detached strong posts, which stretched from the sea to a high sand-dune (Katib Gannit). On its southern flank it was unfortified. The strong posts were manned by the 52nd (Lowland Scottish) Division, between whom and the Anzac Mounted Division there was always a close sympathy and great mutual respect. The mounted troops were at this time employed chiefly on reconnaissance duty and raids—colloquially "stunts"—which during the next three months were undertaken on an average every five or six days. The purpose of these expeditions, which threw considerable strain on the troops, was to seek the enemy, destroy his posts, round up his agents—the Bedouin native tribes—and incidentally obtain a knowledge of the difficult country ahead. During this time the enemy, under Kress von Kressenstein (who had commanded the first attack on the Canal early in 1915), was organising his resources for an attack on the Suez Canal defences, his object being to entrench within artillery range of the Canal and dislocate its traffic.

Raiding operations

In each reconnaissance at least one regiment was employed, and in many of them a whole brigade with appropriate ambulance personnel. Leaving the camp after dark, the force would march by the stars through the soft sand, which permitted only a walking pace, and would follow the devious route necessitated by the never-ending dunes. The objective would be surrounded before daylight and the enemy—if he were there—attacked. Patrols would then be pushed out in all directions. After a rest the force would march back by day to Romani. The weather was very hot, and the glare from the sand, added to the heavy going, intensely wearying. Drinking water, brought to Romani by train, was limited to a waterbottle of one-and-three-quarter pints per man and most often was lukewarm or hot. The nights were generally cold, and heavy fogs often arose after midnight, adding greatly to the difficulty and strain of the operation. In May the railway reached Romani, and sufficient water and supplies

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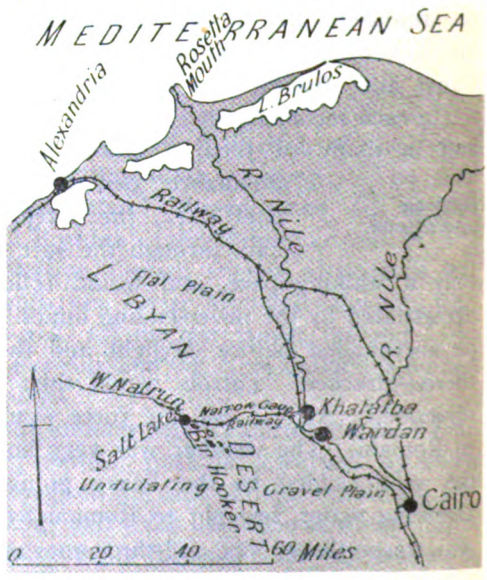
were available for two brigades. During the month the 1st Light Horse Brigade arrived from Upper Egypt, and the work was much lightened.[3]

Individual reconnaissances differed little from each other. It was not till the middle of July that the enemy appeared in strength before the British position; consequently most of the early reconnaissances, though not without incident, were bloodless. The first in which ambulances took part was to Bir el Abd on May 7th and 8th, in which one bearer subdivision with eight sandcarts and two sledges accompanied the 6th and 7th Light Horse Regiments. Contact was not gained with the enemy.

Ambulance takes part

A reconnaissance on May 15th-16th to Hod ed Dababis, Mageibra, and Bir Bayud by Australian and New Zealand mounted troops, though without fighting, brought heavy work



[3] Within a few days of its return from Gallipoli the 1st L.H. Bde. had been sent to Wardan on the Cairo-Alexandria railway, to form part of the Western Frontier Force under Maj.-Gen. W. E. Peyton. The 3rd L.H. Regt., on outpost at Wady Natrun, was engaged in patrolling the Libyan Desert to the west of the Salt Lakes. Evacuation of its sick was at first by stages of sandcart and narrow-gauge railway to Khatatba on the main western railway; but the arrival at this station of a detachment of the 1st L.H. Fld. Amb. in Jan., 1916, was followed by the institution of a heavy motor ambulance service across the hard gravel plateau of the Libyan Desert from the heat of the Wady Natrun to Khatatba. By this means one urgent case was carried from the regiment to hospital at Cairo—eighty miles—in four hours. It is worthy of note that the use of motor ambulance transport in the western desert anticipated that of armoured cars, which were afterwards used with such decisive success in terminating the campaign on the western frontier.

In February this brigade had been despatched to occupy detached posts at towns along the Nile in Upper Egypt, where their task was the protection of the Nile Valley from the Senussi by a system of patrols towards the west.

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to the medical units concerned—a bearer subdivision of the 2nd Light Horse Field Ambulance and the tent division of the New Zealand Mounted Field Ambulance. The former, with full medical transport, accompanied its column (the 6th Light Horse Regiment), while the latter formed a dressing-station at Katia. The New Zealand troops (Canterbury Mounted Rifles) were accompanied only by ambulance transport, the New Zealand bearers being still unmounted. May 16th was the hottest day of summer, 124.5 degrees in the shade being recorded—so hot that leather became painful to handle. Returning in the heat of the day after a sleepless night and with very little water, the regiments suffered severely, and on reaching Katia 160 men collapsed from heat-exhaustion. Many, when the need for husbanding their water was removed, had drunk deeply of the lukewarm water in their waterbottles, and the result was immediate vomiting and collapse. The majority recovered quickly when water from wells was thrown on them, but seventy were admitted to the dressing-station, and thirty-four had ultimately to be evacuated to Kantara. All eventually recovered from the immediate effects. An extract from a report by the medical officer of the 6th Light Horse Regiment[4] gives a graphic account of the condition of the men of his regiment at Katia:—

Cases of "heat-exhaustion"

A move was made late at night to return to Romani Camp (from Katia). It had then become cool and pleasant. Thirty-four patients were found unfit to ride or walk, and were removed in sandcarts. A number of these were unconscious, and a number more semi-conscious. These cases presented curious symptoms which we had not seen before. They all had sordes about the mouth, covering lips and teeth, and a continuous action of the tongue and lips, in which the tongue was protruded and worked from side to side with a smacking of lips, noisily done, as of tasting or making the most perhaps of a drop of water in imagination. Drinks of water or tea did not make an end of this condition, which continued till the ambulance camp at Romani was reached, where all patients were laid out, some in tents and some in the open. As no liquid so far had been of any use in diminishing the thirst duration in any patients, one of the medical orderlies suggested lime-juice and water. This was tried, and the effect was immediate relief. Those who were conscious stated that it was the only satisfying liquid they had had. Those cases were all evacuated next day and recovered. One incident perhaps worth recording during this day of thirst. Those men who struggled back to Katia and Romani wells on horses flung themselves from their

[4] Captain C. H. Anderson.

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horses and on all fours struggled between the heads of excited, thirsty, whinnying animals, and devoured the brackish water from the troughs together. I do not think the majority of these men were quite in normal mental condition, and would remember this action afterwards. They all drank like animals alike.

The longest reconnaissance took place at the end of May. In this operation the New Zealand Mounted Rifles Brigade was ordered to attack at daylight on May 31st an enemy post at Hod Salmana twenty-seven miles from Romani, with the 1st and 5th Light Horse Regiments in support. The medical arrangements for this raid were very complete. To compensate for the distance over which wounded would have to be transported to railhead, and to meet the necessity for bringing in all wounded in one trip, the proportion of medical personnel was in excess of that normal for the number of the fighting troops.[5] Arrangements were made for an advanced dressing-station at Hod ed Dababis and for a main dressing-station at Romani where wounded would be transferred to a train. Leaving Romani at 10 p.m. on a pitch dark night, the column had great difficulty in maintaining direction, and eleven hours were consumed in marching sixteen miles. The 2nd Light Horse Field Ambulance distinguished itself—as often afterwards—by its ability to find its way and its readiness in surmounting difficulties of location; in this march it was the first to detect a considerable error in the direction of the column. The Turkish post was attacked at daylight and destroyed, and the force reached Romani late that night. Two wounded were treated by ambulances, one a Turk.[6]

Medical arrangements for long distance raid

On June 1st a reprisal for the raid in the form of a bombing by enemy aeroplane caused the first serious casualties in the division, 8 of the 1st Light Horse Brigade being killed and 22 others wounded. About 100 horses were lost.

First serious casualties

[5] To emphasise the fact that field ambulances were divisional units, the 2nd L.H. Fld. Amb. bearer-division was attached to the regiment of the 1st L.H. Bde. engaged in this operation.

[6] In this reconnaissance the use of pedrails (a device wherein 12-inch boards were linked by chains to the wheel in the same way as the "Parsons chain" for motor tyres) enabled an 18-pounder gun to be taken with the force. Later, at the Government workshops in Cairo, sets of pedrails were made from private funds for use on ambulance waggons, but it was found that the small front wheels of these vehicles made the pull too heavy.

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On June 11th an order from General Headquarters E.E.F., received by the division through No. 3 Section Headquarters, directed the formation in each brigade of a "mobile" column, to include part of an ambulance. This constituted a development of cardinal importance in the history of the Australian light horse field ambulances. The essential feature of the "mobile" column, to be formed from a body of troops supposed to be already completely mobile, was the provision of sufficient camels to replace the vehicles which were intended for carrying stores but were rendered useless by the sandy desert to be traversed. But its formation emphasised the fact that a considerable proportion of each field ambulance was not mobile, and this led to a permanent division into a "mobile" and an "immobile" section. The mobile section consisted of 79 personnel (of whom 14 were carried in sandcarts or camel cacolets), the whole of the ambulance transport for wounded (sufficient to carry 72), and 19 camels for water and equipment. Horses totalled 89, and camels, with native drivers, 44. The immobile section comprised the remainder of the personnel, 45 in number, with the normal tent division equipment. This division of each ambulance into sections depending on the provision or absence of animals for the personnel became, as the campaign progressed, the keynote of the organisation of ambulances, and entirely replaced the previous division of each unit into two practically identical sections.

Ambulances divided into mobile and immobile sections

The sudden appearance on July 19th of the enemy in strength, on the line of Bir el Abd–Bir Bayud, heralded another phase of the desert campaign; the ensuing month, during which he attacked, was defeated, and finally driven back, was one of great physical strain to the troops. Leaving Shellal (north-west of Beersheba) on July 9th, the main body of the enemy, numbering some 16,000, steadily advanced towards the Romani position, and on August 4th atttacked in force. From the time of his appearance the 1st and 2nd Light Horse Brigades kept in touch with and harassed him. It being necessary to return to Romani each night to water horses, the

Enemy attacks in force

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two brigades operated on alternate days. One would leave camp about 2 a.m., make touch with the enemy about daylight, and return to camp about 9 p.m., leaving out patrols; the other would carry out a similar programme next day. The additional task of watering and grooming the horses left little time for rest, and that chiefly in the heat of the day. In these operations against the enemy the 1st and 2nd Light Horse Field Ambulances, under divisional direction, took part on alternate days. The New Zealand Mounted Field Ambulance was at Hill 70 with its brigade, but was directly under the orders of the D.D.M.S., No. 3 Section. At the outset the four ambulances[7] had considerable deficiencies in respect of transport for wounded, but these were partly remedied before the enemy attacked.

British dispositions

The British Force under Lieutenant-General Hon. H. A. Lawrence, thus placed on the defensive, consisted of some 30,000 rifles—the 52nd and 42nd Divisions, one dismounted brigade, and one brigade of the 53rd Division, together with the Anzac Mounted Division, one British mounted brigade, and artillery. The 52nd Division, entrenched on a seven-mile front from Katib Gannit to the sea, defended the front and left flank; on the unfortified southerly right flank, naturally protected by sand-dunes, were disposed the 1st and 2nd Light Horse Brigades. In case of an enemy attack developing on this flank, the plan of the British commander provided for a counter-attack by the New Zealand Mounted Rifles and 5th Mounted (Yeomanry) Brigades from Hill 70, by the 3rd Light Horse Brigade from Bally Bunion, and by a mobile column from Ferdan on the enemy's left flank and rear. The railway had reached Romani.

From the point of view of the Assistant-Directors of Medical Services of the formations concerned, particularly of the mounted troops, the medical arrangements made by the headquarters of the Section for the expected attack left much to be desired.[8] In the absence of orders co-ordinating

[7] With its brigade the 3rd L.H. Fld. Amb. had shortly before this arrived from Serapeum and joined the Anzac Mounted Division, being stationed at Bally Bunion in No. 2 Section.

[8] Casualties from the 3rd L.H. and 5th Mtd. Bdes. were to be evacuated to Romani: the order was cancelled when its impracticability was pointed out, as was a similar instruction that a number of sandcarts of the Anzac Mtd. Div. should be handed over to the 52nd Division.

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Arrangements for evacuation

evacuation from field ambulances of the divisions likely to be engaged, the Assistant-Directors of Medical Services of these made mutual arrangements. The A.D.M.S., 52nd Division, agreed that wounded from the Anzac Mounted Division should be received by the 3rd Lowland Field Ambulance—commanded by an Australian—at Romani railhead, to which they were to be taken by a large cacolet camel convoy[9] belonging to the 52nd Division, if the task should become too great for the resources of the light horse units. From this field ambulance at railhead (which would serve as a clearing station) only trucks were available for the twenty-five-mile journey to Kantara, where the nearest casualty clearing station was situated, this stage of evacuation being under the control of the D.D.M.S., No. 3 Section. From Kantara cases would be conveyed in a well-equipped ambulance train to Cairo or Alexandria, or, alternatively, by paddle-boat to a general hospital at Port Said. As a precaution, in the event of the main railway line being cut by the enemy, provision was made for the evacuation by a Decauville railway from Mahemdia to Port Said.[10]

Battle of Romani

The Battle of Romani began a few minutes before midnight on August 3rd, when the enemy, making here his main attack, encountered the 1st Light Horse Brigade left out on an outpost line to cover all the south-easterly approaches to the unfortified part of the position. It was the resistance put up by this brigade in the hours of darkness against greatly superior numbers that determined the result. At daylight the 2nd Light Horse Brigade reinforced the 1st, and both withdrew to a line protecting the right flank and rear of the Romani position and railway line. As the attack continued, the enemy

[9] Each infantry division had two such "ambulance convoys" formed from the transport of the field ambulances and including sandcarts, each capable of carrying 158 wounded. When thus lent to a mounted division, they performed functions which corresponded to those of the motor ambulance convoys of a later date, namely, transport from field ambulance to casualty clearing station or railhead.

[10] Shortly before the Turkish attack a message addressed to the "Commandant, Romani," was dropped from a German aeroplane to within a few feet of the Anzac Mounted Division Headquarters while the staff was at breakfast, stating that ambulances were insufficiently marked, and requesting that a red cross on a white sheet should be placed on the ground. Officers of the Royal Flying Corps asserted, however, that the ground flags were visible at 7,000 feet; nevertheless the hint was taken, and in the air-raids which followed this incident ambulances were strictly respected.

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gained possession of the reverse slope of a ridge (the Wellington Ridge) which overlooked the camp, but could not establish himself on its summit. He then threatened to outflank the British right, a manœuvre which, if successful, would have brought him to the rear of the Romani position. The two light horse brigades opposing this thrust, with two companies of the 52nd Division and a regiment of the 5th Mounted (Yeomanry) Brigade, which got in touch with the right of the 1st Light Horse Brigade about 10 a.m., were hard put to it to prevent this manœuvre. On the front of the position, beyond demonstrations, and the shelling of railhead, camps, and infantry posts, no attack was made. The action continued throughout the day, the enemy reaching the farthest point of his advance about 11 a.m. Early in the afternoon the New Zealand Mounted Rifles Brigade from Hill 70, having got in touch with the 5th Yeomanry Brigade, made an attack on the enemy's left flank, which was planted on Mount Royston. This sand-hill was captured at 6 p.m. The whole line then moved forward and drove the enemy back till darkness caused a halt. At daybreak on August 5th Wellington Ridge was retaken by assault, and an advance was made all along the line in pursuit of the enemy, who retired upon prepared positions at Katia.

During this battle the work of the ambulances was easier than in any other battle of the campaign, the wounded having to be carried for a short distance only. The 1st Light Horse Field Ambulance left its tent division in the Romani camp; its mobile section, which had not accompanied its brigade to the outpost line on the night of August 3rd, moved out at daylight on the 4th, and, meeting the brigade retiring before the enemy, at once came under fire. A detachment was sent forward to collect wounded, sustaining a few casualties in doing so, while the main portion of the unit retired to cover. For the rest of the day the unit was continuously engaged in collecting wounded and taking them to the tent division.

Medical problem simple

The 2nd Light Horse Field Ambulance, moving out at daylight, also came under shrapnel fire. Its camels were sent back to Etmaler, where the tent division was camped; the

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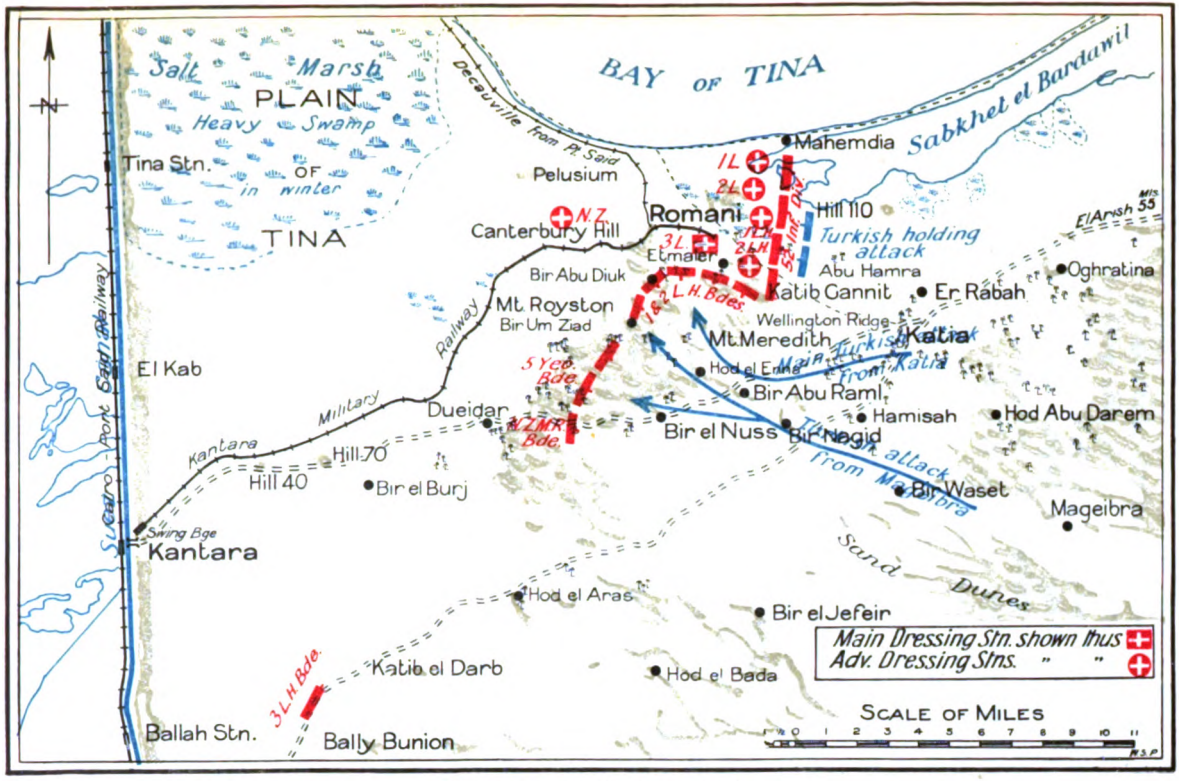

ROMANI—4TH AUGUST, 1916

(*Note.*—"1L," "2L," and "3L" denote the 1st, 2nd, and 3rd Lowland Field Ambulances; "1LH" and "2LH" the 1st and 2nd Light Horse Ambulances.

Map No. 13

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sandcarts galloped singly to cover. Wounded were with difficulty collected at intervals during the morning; in the afternoon sandcarts were able to get up to the firing line in comparative safety. When the shelling of railhead had ceased, both units evacuated their wounded to the 3rd Lowland Field Ambulance, close to the station. The mobile section of the New Zealand Mounted Field Ambulance left Hill 70 early in the morning and, marching by Dueidar, formed a dressing-station at Canterbury Hill in the evening. Here it collected and treated wounded, evacuating them to the railway near by, where the 42nd Division was detraining. On the 5th, while the two tent divisions at Romani continued evacuating to railhead, the mobile sections of the 1st and 2nd Light Horse Field Ambulances spent some hours in collecting wounded Turks and organising a captured Turkish ambulance to treat its own wounded. The wounded prisoners were taken back by the 52nd Division ambulance convoy to the tent divisions. In addition large numbers of the 42nd Division—who had detrained at Pelusium on the previous day, and had collapsed as a result of their subsequent march through heavy sand on a hot day with only a small water-supply—were evacuated by the same means.

Later in the day the two light horse field ambulances joined their brigades in an attack on the Turks at Katia.

British pursuit

The collection and transport of the wounded from this action to the tent division at Romani continued until late at night. The New Zealand Mounted Field Ambulance had a particularly heavy day in dealing with the men of its brigade, who had been in the attack on Katia and did not reach Romani camp till 6.30 a.m. next morning. The 3rd Light Horse Field Ambulance, which had been on the march all the previous day, formed a dressing-station at Bir Nagid, to the south of Romani, for the treatment of the wounded from a successful action by its brigade at Hamisah. On August 6th the New Zealand Mounted Rifles and 5th Yeomanry Brigade pushed on in pursuit of the enemy, who had evacuated Katia during the night, and, while no serious action was fought, attempts to turn the enemy's flanks were unsuccessful. The 1st and 2nd Light Horse Brigades, who were tired out after the continuous

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fighting of the last eighteen days, were given a day's rest, but their ambulances continued evacuation to railhead, practically completing it by the evening. The 3rd Light Horse Field Ambulance passed its wounded back to Etmaler, and moved forward with its brigade. In the afternoon there was a period of some anxiety from the medical point of view when the New Zealand Mounted Rifles and 5th Yeomanry Brigade moved out from Katia to get in touch with the enemy rearguard, for neither of these brigades had any ambulances with them. The New Zealand Field Ambulance, whose horses were exhausted, had not returned from Romani, and the 5th Mounted Field Ambulance had not yet arrived in the area. Fortunately the casualties were few and both ambulances arrived in the evening. The ambulance convoy continued to bring in wounded Turks from a *hod* to the south of Romani and 150 cases of heat exhaustion from the 42nd Division.

A test of mobility

On August 7th, while the mounted troops maintained pressure against the enemy and a column consisting of Camel Corps and the 11th Light Horse Regiment from Ferdan on the Suez Canal attacked his left flank, the 1st and 2nd Light Horse Field Ambulances remained in camp and completed evacuation. From the beginning of the Romani operation the 2nd Light Horse Field Ambulance had so far treated 671 cases. The 3rd collected casualties sustained at Hod es Sagia, while the New Zealand and 5th Mounted Field Ambulances had a small number of wounded, which they sent to the termination of the railway, now at kilometre 47,[11] four miles beyond Romani. At this point, as the result of an arrangement made by the A.D.M.S. of the Anzac Mounted Division with the A.D'sM.S. of the other two divisions, a clearing station was formed from the medical units of the Anzac Mounted, the 42nd, and the 52nd Divisions. This arrangement was necessitated by a continued absence of orders from No. 3 Section Headquarters as to the method of evacuation of casualties of the three divisions. The immobile section of the New Zealand Field Ambulance, left at Hill 70, was ordered up to form this station.

[11] That is, the point on the railway distant 47 kilometres (about 30 miles) from Kantara.

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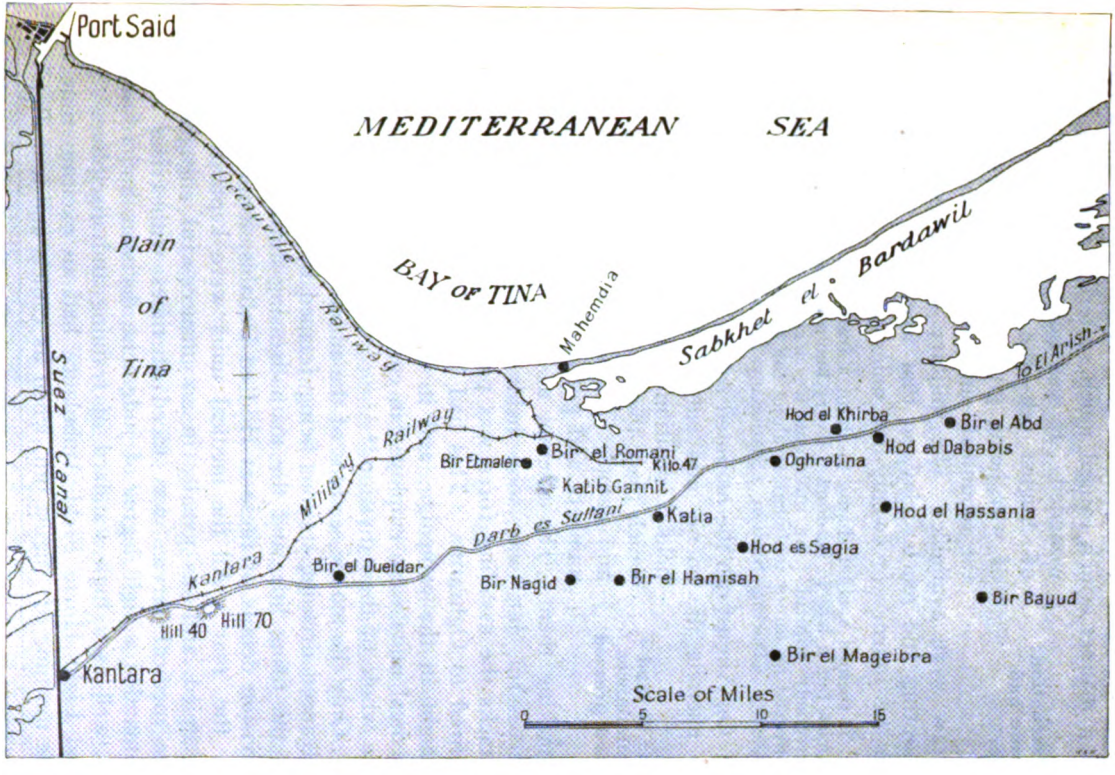

KANTARA—BIR EL ABD, 4TH AUGUST, 1916

Map No. 14

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Evacuation: some bad work

The evacuation by train from Romani was carried out in a manner which caused much suffering and shock to the wounded. It was not effected till the night of August 6th—the transport of prisoners of war being given precedence over that of the wounded—and only open trucks without straw were available. The military exigencies necessitated shunting and much delay, so that five hours were occupied on the journey of twenty-five miles.

It seemed a cruel shame to shunt a train full of wounded in open trucks, but it had to be done. Every bump in our springless train was extremely painful. At midnight we arrived at Kantara and were conveyed by motor ambulances along the newly-made road to the 26th Casualty Clearing Station (Stationary Hospital).[12]

Bir el Abd—ambulances hard pressed

On August 9th the mounted troops made a desperate effort to encircle the enemy and cut off his retreat. The Turks held a position covering Bir el Abd, from which place they were evacuating their stores and camp. They were greatly superior in numbers and guns to the five weak brigades attacking them. The attempt at first appeared likely to be successful, but was soon held up; by repeated counter-attacks the assailing force was pushed back and the division retired to Oghratina. This had been the hardest action yet fought in the campaign, and it was the first in which the medical units were employed in connection with an attack by the whole of their division.[13]

Only the mobile sections of the ambulances were employed, advanced dressing-stations being formed by the bearers close to the firing line, and the main dressing-station by the tent division details of these at Hod ed Dababis, some four miles in the rear. All the medical units were kept strenuously occupied, and—as usually in an unsuccessful engagement—the medical service was faced at times with crises which demanded a high degree of judgment, decision, and resource, as well as a high standard of training and discipline. The 2nd Light Horse Field Ambulance had an exciting time in the morning of August 9th, when its camels and tent division

[12] Extract from the diary of a yeomanry medical officer who was severely wounded at Katia on Aug. 5. As the result of an inquiry the C.-in-C. decided that no blame could be attached to any individual: but subsequent evacuations were greatly improved.

[13] The Anzac Mounted Division now consisted of five brigades—the 1st, 2nd, and 3rd L.H., the N.Z. Mtd., and the 5th British Mtd.

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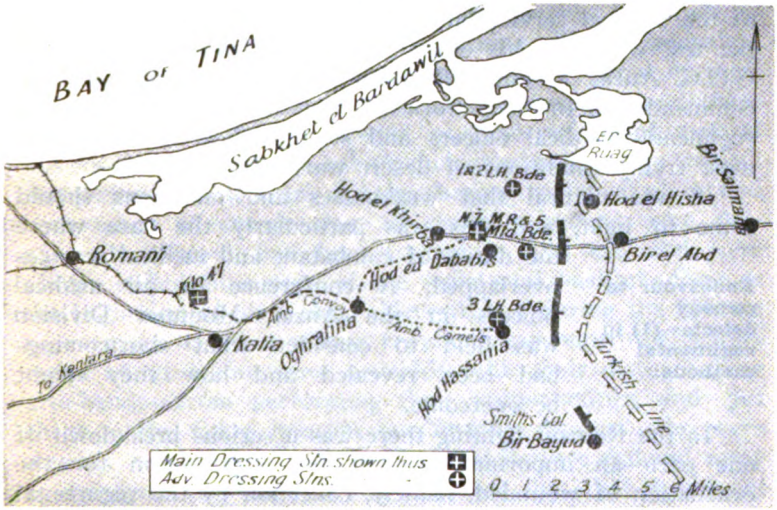
were brought up from Hod el Khirba in anticipation of an advance, whereas, instead, the line was forced to retire. The camels were got away with difficulty, while the bearers and



The affair of Bir el Abd

sandcarts were left in front of the line and collected wounded between the fire of friend and foe. Notwithstanding the retirement and frequent counter-attacks, all casualties except five (two of whom were moribund) were evacuated, the severe cases to the clearing station at kilo. 47 (about twelve miles distant), the lightly wounded chiefly by camel to Oghratina (six miles), where the 52nd Division Ambulance "convoy" awaited them.

With this engagement closed the stage of active fighting which had begun at Romani. The total number of patients treated by the ambulances of the Anzac Mounted Division between August 4th and August 9th was 1,314, including 180 enemy wounded.[14] The casualties in medical personnel

[14] The enemy's casualties during this operation were estimated at 9,000, including 4,000 taken as prisoners. Casualties in the E.E.F. were as follows:—

	Killed.	Died of wounds.	Wounded.
British	79	27	259
Australian	104	32	487
New Zealand	39	12	163
Total	222	71	909

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in the Anzac Mounted Division were 1 officer and 1 other rank killed, 2 officers and 12 other ranks wounded. The operations of these three weeks from July 19th had served as a severe test of the organisation, equipment, and training of the medical service, and, speaking generally, it had stood the test well. In his official account of the operations the G.O.C. Anzac Mounted Division referred in terms of high commendation to "the work of the field ambulances and regimental medical officers and stretcher-bearers under the most trying conditions of desert warfare."

Endeavour to remedy defects—(1) in regimental methods

It was natural that weaknesses and omissions should come to light, and this was particularly the case where the duties of combatant and medical services overlapped. A conference of all medical officers in the Anzac Mounted Division was held to consider what shortcomings had been revealed and how they might be overcome.

In the Romani fighting there was a serious breakdown of one part—an important one—of the organisation for the evacuation of wounded, namely, collection by the regimental stretcher-bearers. According to the military manuals their duty in action was to collect the wounded and transport them to "regimental collecting posts." In a light horse regiment it was rarely possible to establish a regimental aid-post (as known in an infantry battalion), since the frontage occupied by a regiment is commonly two or three miles, and the distance over which wounded must be carried from a flank makes a central aid-post impracticable. In consequence there was evolved a practice of forming a collecting post for each squadron, staffed by one of the medical officer's two orderlies or three "water duty" men. The regimental medical officer himself usually took up his position close to regimental headquarters, where he could readily be found and could keep in touch with information concerning the situation of the wounded. As far as possible the wounded were brought to his post after their first dressing at the "squadron collecting post," and to either post the ambulance stretcher-bearers or sandcarts repaired as required to evacuate them. It frequently happened that some time elapsed before a wounded man was treated by a trained orderly or

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medical officer, so that much depended on the training and intelligence of the stretcher-bearers who were the first to handle him. The lessons of Gallipoli as to the value of employing as stretcher-bearers only men of good physique and intelligence appeared to have been largely forgotten by regimental commanders at the beginning of this campaign. As a rule it was the men who could be best spared by their regimental officers that became stretcher-bearers, and these were continually being changed, so that regimental medical officers could not rely on having their bearers properly trained. But before the Romani fighting began, particular care had been taken to ensure that all stretcher-bearers were permanently allotted, had been trained in first aid, and were always under the orders of the regimental medical officer at the beginning of an action. Nevertheless during the fighting regimental combatant officers frequently prevented the bearers —not all of whom were provided with their distinguishing arm-bands—from performing their proper duties, and put them in the firing line; in one instance bearers who were actually employed in collecting wounded were ordered away to reinforce the line. It was apparent that this would not have occurred if the bearers had not retained their rifles. The consequence was that frequently untrained men carried back the wounded, with the result that far more men were withdrawn from the firing line than if the trained bearers had remained at their proper duties. Furthermore, in dressing the wounded, regimental medical officers and orderlies were forced to expose themselves unnecessarily, instead of working under cover, and the sandcarts were forced to come up too close to the firing line. The situation was made still worse by a lack of light stretchers. After Romani, however, the use of stretcher-bearers was put on its proper footing by orders from divisional headquarters, and these miscarriages did not recur.

(2) In keeping touch

It was found at Romani that the method by which ambulances were informed of the location of wounded was unsatisfactory. The training manuals provided for the passage of this information through brigade headquarters, but, though this rule was often carried out, more often any officer or

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man, seeing wounded, sent off direct to the ambulance a message that sandcarts were required at such and such a place; or a message would be sent that a specified number of sandcarts was wanted. There was a marked tendency in action to regard medical personnel as everyone's property, to be rushed off instantly at anyone's directon, perhaps to do most impossible things. Yet ambulance commanders had been given certain areas or bodies of troops from which they must collect the casualties, and the method of so doing was their responsibility; what they wanted to know was the position and number of casualties.[15]

A main cause of this lack of system in communication was the breakdown of the regimental organisation, and that, in turn, was partly due to the non-provision of portable stretchers. It became apparent that the transmission of information from regiments to ambulances was best carried out by the medical personnel. As a result, the following plan was adopted. Ambulance bearers were sent to locate the regimental collecting posts and inform the regimental medical officer of the position of the ambulance; if touch could not be obtained in this way, regimental stretcher-bearers were sent out to find the ambulance; and only if this proved unsuccessful was communication obtained through the brigade headquarters, which rarely failed to know where its ambulance was.

(3) In lack of portable stretchers

Perhaps the most glaring defect brought to light during this early stage of the desert warfare was the absence of stretchers suitable, when closed, for carriage on horseback. The ordinary army stretcher, weighing 30 lb., was too clumsy to be so carried. According to the textbooks, stretchers should be carried in the Maltese carts of regiments or the transport vehicles of field ambulances. In Sinai these vehicles were perforce replaced by camels or packhorses; but the former, as has been already mentioned, could not be brought near the firing line, while the stretchers were too long for convenient packing on horses. Furthermore, mounted

[15] In one instance three separate notifications of the same wounded were received by an ambulance; in another, headquarters sent an order for three sandcarts for one wounded man; in a third, ambulance transport sent by its commanding officer to one place was diverted by someone else to another place.

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regiments become so dispersed in action that one animal carrying stretchers is of little use. This applies in mounted field ambulances also. Even in 1914 stretcher-bearers had been taught to form stretchers from their saddle blankets and stirrup-irons and leathers;[16] but this device was found most unsatisfactory. A few light stretchers which could be carried on horseback were improvised by the 2nd Light Horse Field Ambulance in June, and Ordnance was asked to obtain sufficient bamboo poles to supply as many stretchers as were required, but without result. The consequence was that regimental and ambulance stretcher-bearers were of very limited use in action, so that it became necessary for sandcarts and sledges to be brought up very close to the firing line—and in some cases in front of it—with the result that unnecessary casualties were sustained, especially among the horses.[17]

[16] *See plate at p. 54.*

[17] The rest of the story of the portable stretchers may be told here. In September, 1916, the Australian Red Cross Society supplied light bamboo poles, since Ordnance had failed; canvas beds were made in the units. Though these poles were unfortunately not strong and only survived a few months' use, they were of great value in the actions at Magdhaba and Rafa. A fresh supply of poles (eventually paid for from army funds) was again obtained from the Australian Red Cross Society early in 1917. By August of that year these were broken or lost, but authority had been obtained for issue from Ordnance of some poles which were stated to be suitable. When they were delivered, they were found to be bamboo poles for use in the signal service, and useless as stretcher poles. Consequently the regiments were unequipped with portable stretchers for the 1917 offensive. The want was partly met by an order that all captured Turkish cavalry lances, which made excellent stretcher poles, were to be handed over to the medical corps for this use: but an insufficient number were captured. In April, 1918, the signal service supplied 200 poles (744 were required) which this time were more or less satisfactory. The main difficulty had been that the bamboo obtainable in Egypt was unsuitable, and it was not till October, 1917, that bamboo poles were ordered from India. These arrived in the following May and, as a result of pressure from several quarters, it was at last agreed that Ordnance should manufacture and supply light folding stretchers made in accordance with a pattern which had been evolved in the Anzac Mounted Division. Each stretcher consisted of a sheet of canvas, two bamboo poles, two traverses, and two slings. The canvas bed measured six and a half feet by two feet, and had a fold hemmed along each side, through which the poles were pushed. Traverses, made of the thin sheet-iron which was used to encircle bales of tibbin, and provided with rings at either end, were pushed over the extremities of the poles to keep them apart. At one time traverses were thought to be unnecessary, but without them the stretchers were difficult to carry and tended to squeeze the patient. To prevent their loss, they were attached to the poles by cords. The slings, though their real purpose was to distribute the weight of a loaded stretcher, served to wrap it up when carried on horseback. There it was carried in a small leather bucket attached to the off-side stirrup and slung loosely by a strap from the stretcher-bearer's right elbow or saddle wallet. (An example of this stretcher is to be seen in the Australian War Memorial Museum, and it is figured on *p.* 586.) A complete supply of them arrived in the field just before the final offensive in September, 1918, but too late for all ambulances to make use of them. They proved thoroughly satisfactory, and made it possible for stretcher-bearers to carry serious casualties without being dependent on any transport.

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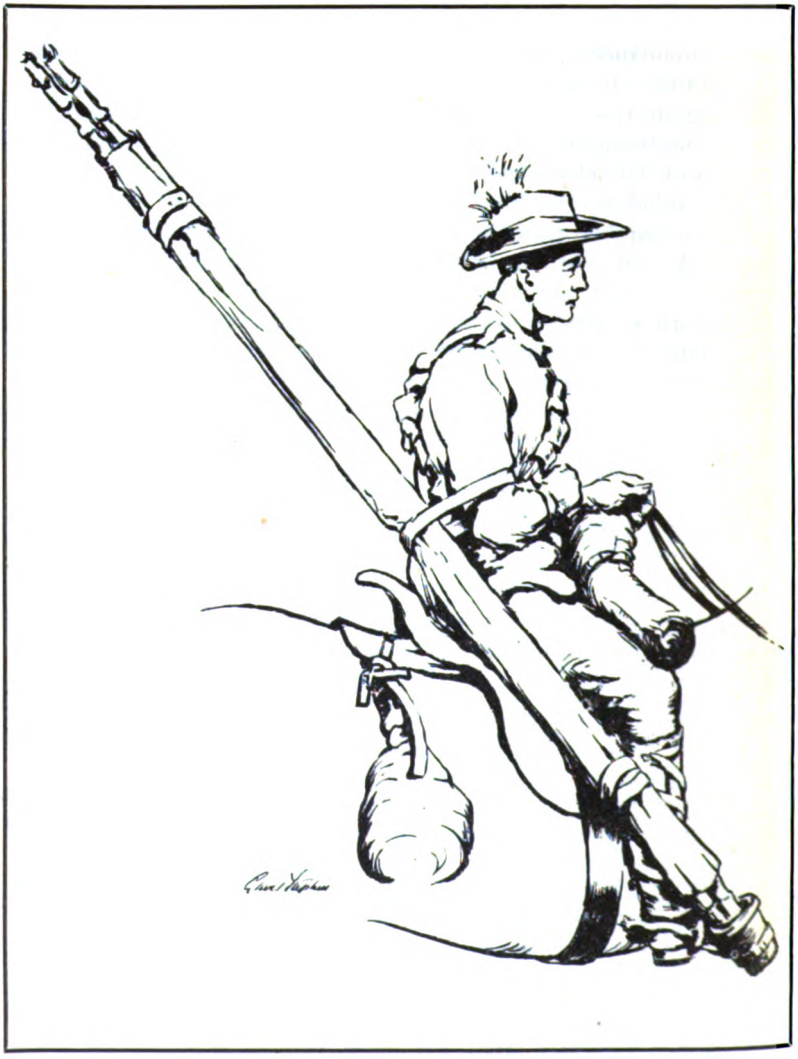

A LIGHT HORSE REGIMENTAL STRETCHER-BEARER CARRYING PORTABLE STRETCHER

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CHAPTER III

OPERATIONS IN THE SINAI PENINSULA

At the end of 1916 the force in Sinai, reorganised as the "Eastern Force" with an advanced "Desert Column," moved across the peninsula to El Arish, near the Palestine frontier, and shortly afterwards raided the two remaining enemy posts in northern Sinai at Magdhaba and Rafa. In this phase of the campaign there became prominent in the medical arrangements the "receiving stations," which were to play an important part in evacuation. In the second raid a withdrawal ordered by the higher staffs involved the "collecting stations" of the ambulances in a difficult situation.

* * *

After the Battle of Romani there seemed to the War Council little reason for any forward move on the part of the Egyptian Expeditionary Force. The situation in Europe was more satisfactory; no danger threatened Egypt from the Turks. The War Council accordingly sanctioned only the advance to El Arish, the strategic objective in the original plan of Sir Archibald Murray for the defence of Egypt. With this intention the railway and pipe-line were pushed forward at the rate of twenty miles per month and lines of communication were organised, actual military operations being meanwhile confined to counter-patrol work. After his successful repulse of his pursuers at Bir el Abd the enemy had established himself at El Arish, with an advanced post at Mazar, a small group of wells twenty miles east of Bir el Abd.

In the middle of September, the railhead having reached Hod en Negiliat, a resumption of the offensive was begun with a reconnaissance in force by the Australian mounted

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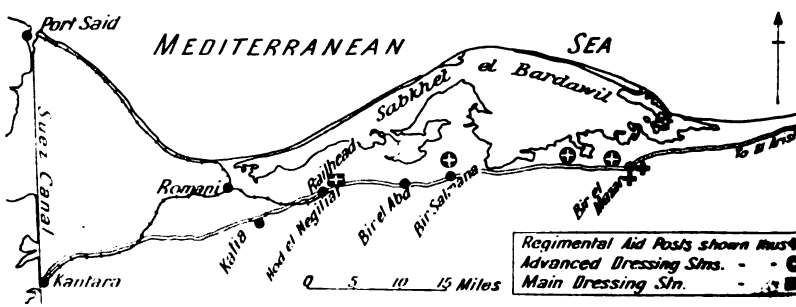
troops and Camel Corps[1] on Mazar, which only was to develop into an attack on the position if no serious resistance were encountered; its capture would ensure a water-supply[2]—a factor of vital importance. The reconnaissance was carried out by the 2nd and 3rd Light Horse Brigades and the 1st Battalion of the Imperial Camel Corps, with artillery; these were accompanied by the 2nd and 3rd Light Horse Field Ambulances. A small medical detachment with a few camel cacolets was supplied for the camel battalion by the D.D.M.S., No. 3 Section. Medical arrangements provided that the two mobile sections should accompany their brigades; one and a half ambulance convoys from the 42nd and 52nd Divisions

British advance



were attached, to be stationed at Bir el Abd; a dressing-station to function as a relay post would be formed eleven miles west of the position to be attacked, and a second at Salmana. A special feature of the medical arrangements was the provision at railhead for early surgical treatment, an improvised surgical team being stationed there with the

[1] A formation organised early in 1916 and mounted entirely on camels. Of 10 companies (each consisting of 5 officers and 125 other ranks, with 153 camels), 4 were formed from men drawn from the 1st and 2nd Aust. Divisions. In September 1916 authority was received from Australia for the formation of four additional camel regiments from surplus light horse reinforcements. In November these were organised into battalions, of which two consisted of four Australian and one New Zealand company each and were designated 1st and 3rd (Anzac) Battalions, Imperial Camel Corps. The 4th (Anzac) Battalion was formed at the end of 1916. The 2nd Battalion was British. The medical establishment consisted of one medical officer with orderlies to each battalion. No medical unit was at first attached and for the evacuation of their sick and wounded the battalions relied on adjoining light horse or infantry formations.

[2] For religious reasons the Turks rarely destroyed wells in a retreat.

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80. A LIGHT HORSE COLUMN, INCLUDING FIELD AMBULANCE (IN FOREGROUND), ON THE RECONNAISSANCE TO BIR EL MAZAR, SEPTEMBER 1916

Lent by Air Mechanic R. L. Sillett, No. 1 Sqn., A.F.C.
Aust. War Memorial Collection No. J2620.

81. WOUNDED BEING CONVEYED ON AMBULANCE SLEIGHS FROM EL ARISH TO RAILHEAD, DECEMBER 1916

Taken by Lieut.-Colonel W. H. Scott, 9th L.H. Regt.
Aust. War Memorial Collection No. B2827.

To face p. 588.

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82. The New Zealand Mounted Field Ambulance crossing the Wady el Arish *en route* to Rafa, 8th January, 1917

Lent by Capt. R. L. Withers, N.Z.M.C.
Aust. War Memorial Collection No. B2508.

83. Wounded from the raid on Rafa, 9th January, 1917

The cacolets, which are shown alongside the ambulance train at El Arish, were captured from the Turks at Romani.

Lent by Capt. R. L. Withers, N.Z.M.C.
Aust. War Memorial Collection No. B2509.

To face p. 589.

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immobile sections of the 2nd Light Horse Field Ambulance. This represented the first attempt in the campaign at early operative treatment in the field units, a procedure not, however, effectively exploited till nearly a year later.

"Surgical team" at railhead

The force concentrated at Bir el Abd, and, after a night march, an attack was made at dawn on the 17th. The position was found, however, to be strongly occupied, and after some fighting the difficult military operation of withdrawal was successfully carried out when the wounded—sixteen in number—had been collected by sandcarts. Hot food and drinks were given at the relay dressing station; Salmana was reached at 8.45 p.m. and railhead at 5 a.m. next morning—thirty-five miles in twenty hours. Five hours later the wounded were sent by truck train to Kantara. Shortly after this reconnaissance the Turks vacated Mazar.

On October 23rd Sir Archibald Murray with his headquarters (including the D.M.S., E.E.F.) moved from Ismailia to Cairo. All troops east of the Canal were formed into the "Eastern Force" under Lieutenant-General Sir Charles Dobell, with Colonel M. J. Sexton as D.D.M.S.; the headquarters were at Ismailia. The advanced guard of this force—the 52nd and 42nd Infantry and the Anzac Mounted Divisions, together with the Imperial Camel Corps—were formed into the "Desert Column" under Lieutenant-General Sir Philip Chetwode, with Colonel C. J. Macdonald as D.D.M.S.

"Eastern Force" and "Desert Column" formed

Meanwhile the railway and pipe-line, and *pari passu* the British front, had moved steadily eastward to get within striking distance of the enemy's main position. On October 19th the Anzac Mounted Division Headquarters and on the 24th the 52nd Division were established at Bir el Abd, the former moving to Mazar on November 25th. On November 17th the pipe-line reached Romani, and on the 26th railhead reached Mazar. Evacuation from the mounted brigades was now based on their immobile sections at Mazar and Abd; thence it proceeded to Kantara by train.

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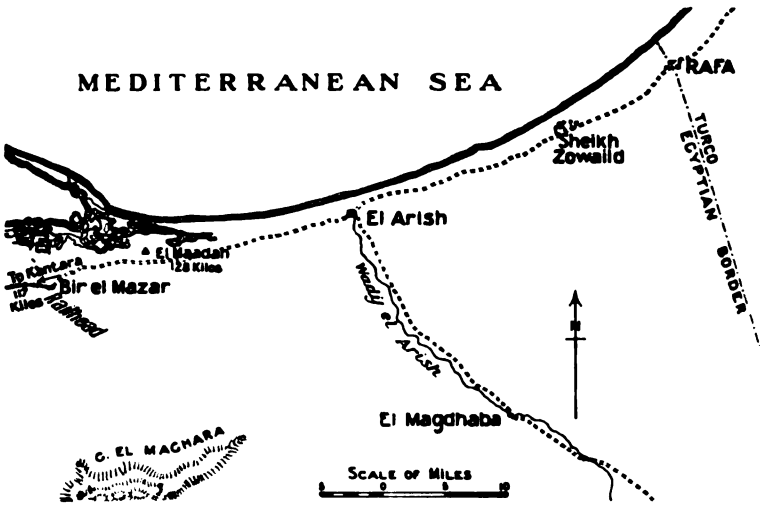
In December reconnaissances were resumed, chiefly up to the Wady el Arish in search of water and southwards towards the Maghara mountains.[8] On the 14th, under the direction



of the Desert Column Headquarters, a practice attack was carried out against a position representing the enemy trenches at El Arish. To the medical service this gave opportunity for testing the new portable stretchers and for applying the lessons of Romani and the raids.

The most difficult part, but a vital one, of the preparation for the attack on El Arish was the provision of water for the attacking force. Between Mazar and El Arish the supply was negligible, and it was not till the middle of December that the advance of the pipe-line permitted sufficient water to be stored at Maadan (kilo. 128) for the supply of an adequate force by camel train. On December 20th, after a night-march, the Anzac Mounted Division (1st and 3rd Light Horse, New Zealand Mounted Rifles, and Imperial Camel Corps Brigades) invested El Arish, which was found to have been evacuated by the enemy. After medical inspection and chlorination of

[8] Subsequent to the raid on Mazar, while the Anzac Mounted Division, leaving two brigades at Bir el Abd, returned to the region of Romani and Kantara, a further and somewhat similar raid was on October 13 made against Bir el Maghara by a force of 1,100 containing the 11th and 12th Light Horse Regiments.

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the wells, the town was occupied. It was found to be very squalid, mostly consisting of mud huts; but, with a mosque and a few fine buildings, and, at the mouth of the Wady el Arish (the "River of Egypt" of Herodotus), a fine grove of palm-trees, in a setting of wonderful sunsets it was pleasingly picturesque to eyes accustomed to the eternal sand of Sinai.

Attack on Magdhaba

The Turks had retired to Magdhaba, twenty miles south-east of El Arish on the wady, and to Rafa, thirty miles east on the Turco-Egyptian boundary. It was decided by the Commander-in-Chief to clear them from these positions, the only ones retained in Sinai. At 1 a.m. on December 23rd the Anzac Mounted Division and Camel Corps moved off to the attack on Magdhaba. The bearers of the mobile section of the 3rd Light Horse Field Ambulance, the complete mobile sections of the 1st Light Horse, New Zealand Mounted, and Welsh Field Ambulances, and one camel ambulance convoy accompanied the force. A "receiving station"[4] was established on the beach at El Arish and manned—for a force of 11,000—only by the tent sub-divisional personnel of the mobile section of the 3rd Light Horse Field Ambulance. The immobile sections were at railhead, seventeen miles away, and No. 26 British Casualty Clearing Station[5] at Mazar. At this time the medical situation on the lines of communication in Sinai was as follows:—

At railhead	..	Immobile sections of field ambulances with accommodation for 700.
At Mazar	..	No. 26 C.C.S., with accommodation for 400.
At Bir el Abd	..	No. 24 C.C.S., with accommodation for 400. No. 53 and 54 C.C.S's parked, with equipment for 200 each.
At Mahemdia	..	No. 2 A.S.H., with 800 beds.
At Kantara	..	No. 24 Stat. Hosp., with 800 beds.

[4] The term "receiving station," or "divisional receiving station," was from this time onwards applied to whichever of the medical detachments of the division was situated at, or nearest to, the railhead. As a rule, it represented the last post at which the wounded were under the charge of the medical personnel of the division. It was usually formed by the immobile section of an ambulance, but sometimes—as in this instance—by a portion of a mobile section. The original term "clearing station" (its function being somewhat analogous to that of the ordinary casualty clearing station) was changed on the order of the D.D.M.S.

[5] In December an ambulance train was for the first time brought east of the Canal. It was composed of converted carriages from the Egyptian Railways.

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Magdhaba was attacked at 8 a.m. on December 23rd. The position—a very strong one, defended by 1,600 troops—was surrounded. Progress was slow, and, there being no water nearer than El Arish, the situation was at one time critical; in fact, the order to retire was given, but by 4.30 p.m., before it reached the troops, the position was captured.

For this operation a dressing station was formed three miles west of Magdhaba by the tent division of the New Zealand Field Ambulance mobile section, with the 1st Light Horse Field Ambulance and No. 1 Ambulance Convoy in reserve. Here during the day eighty British wounded were treated, some urgent surgery being carried out and anti-tetanic injections administered, together with nourishment. These cases were evacuated during the night by cacolets and sandcarts to El Arish. The remaining wounded—44 British and 66 Turks collected on the 23rd and 24th—were taken to a Turkish hospital found within the fortifications. Shortly after noon of the 24th all were sent to the dressing-station, whence at 5 p.m. the ambulance convoy set out on its twenty-three miles' march to the receiving station. The night was pitch dark and wet, and the great majority of cases were perforce carried in the camel cacolets, which gave great trouble. After nine hours of intense discomfort the convoys were met, a few miles from El Arish, by sandcarts—lent once more by the 52nd Division—in which the wounded travelled in comfort to the receiving station, where they arrived at 4 a.m. of December 25th. Additional tentage was obtained from divisional headquarters, from a naval beach party, and from the 52nd Division, who supplied also medical stores and personnel to assist. Here some major surgery was carried out, though with very inadequate appliances. On December 26th a convoy of sandcarts was collected by the A.D.M.S. with the intention of evacuating to railhead (kilo. 128), but preparations had in the meantime been made by the D.D.M.S. for evacuation by sea. Weather, however, did not permit of this, and, after a wait of two days for the sea to subside, orders were received to evacuate to kilo. 139 (now railhead), where a hospital train would receive the wounded. On December 29th the largest single ambulance convoy organised

A distressing march

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in the campaign, made up of seventy-seven sandcarts, nine sledges, and a number of cacolet camels, moved out in three lines along the beach with 150 wounded. All but a few, too bad to move, were evacuated on the following day to Kantara.

Heavy rains and cold gales marked the early days of 1917. The Wady el Arish, for most of the year a dry watercourse, came down in spate, but not to a depth sufficient to prevent the passage of horses and vehicles. On January 4th the railway reached El Arish.

Rafa now remained the only position retained by the enemy in Sinai, and its capture was decided upon. After a few days' rest in the pleasant surroundings of El Arish, on January 8th the Anzac Mounted Division, without the 2nd Light Horse Brigade, but including the Camel Brigade, assembled under General Chetwode on the eastern side of the Wady el Arish. With it was the 5th Yeomanry Brigade, whose field ambulance was under the direct orders of the Desert Column Headquarters. Medical arrangements for the force were in the hands of the A.D.M.S., Anzac Mounted Division, who had under him the 1st and 3rd Light Horse Field Ambulances, the New Zealand Field Ambulance, and the 1/1 Welsh Field Ambulance, together with Nos. 1 and 2 Welsh Ambulance Convoys. The column moved off at four o'clock in the afternoon, with all the mobile sections of the field ambulances marching together in rear of the ammunition camels of the first-line transport, instead of in their usual positions in rear of their own brigades. At 9.15 p.m. the village of Sheikh Zowaiid was reached, and here a main dressing-station was formed by the tent division of the 1st Light Horse Field Ambulance. Here also the two ambulance convoys remained, together with part of the sanitary section to attend to the local water-supply. The 5th Mounted Field Ambulance rejoined its brigade. The march was resumed at 1 a.m., the point of assembly was reached at daylight, and the brigades, each followed by its field ambulance, surrounded the enemy's position.

Attack on Rafa

Few scenes could have appeared more unwarlike than that which the dawn unfolded. The matting tents of the Bedouins, with their camels, sheep, and donkeys grazing peacefully, and

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the smoke of their fires mingling with the wreaths of mist rising from the wet green slopes, made a picture which brought to mind the stories of the Old Testament. Rafa is merely a small village and police post on the Egyptian frontier, comprising a few mud huts and separated from the sea by a belt of sand dunes 2½ miles wide. It lies thirty miles from El Arish in a gently undulating country which, though sandy and quickly cut up by traffic, was no longer the soft sand of the desert but at this time of the year was covered by green grass, wild-flowers, and young barley, which made a pleasant change to the eye. About a mile and a half to the south-west of the village was an eminence, El Magruntein, from which the ground sloped gently on all sides; this the Turks had strongly fortified and garrisoned with a force of 1,900 men.

The attack commenced at 8.30 a.m., and the course of the fighting was in striking similarity to that at Magdhaba and later at Gaza. Resistance was strong, and progress slow. As the day advanced, the situation became menacing for the attacking troops, thirty miles from their base and with an enemy force on their flank; moreover, Turkish reinforcements were reported to be advancing from Khan Yunus and Shellal. At 4.30 p.m. a preliminary order was given for a general withdrawal, but, before any order had reached the actual firing line, the fine assaults which have made this battle notable had changed the situation, and at 4.45 p.m. the most important positions had been captured. At 5.30 p.m. the battle was over. In view, however, of the general situation the brigades, with 1,500 prisoners of war, were withdrawn to Sheikh Zowaiid.

Great difficulties of mobile sections

The rapid changes in the military situation had involved the medical service in considerable difficulties. Early in the attack advanced dressing-stations were opened by the mobile sections at three points to the south and south-east of the position and about three miles from it. For the first time the absence of cover resulting from the unbroken slope of the country prevented sandcarts and sledges from reaching the regimental collecting posts, so that it was necessary for the ambulance bearers to carry the wounded a considerable distance to the transport. The improvised portable stretchers

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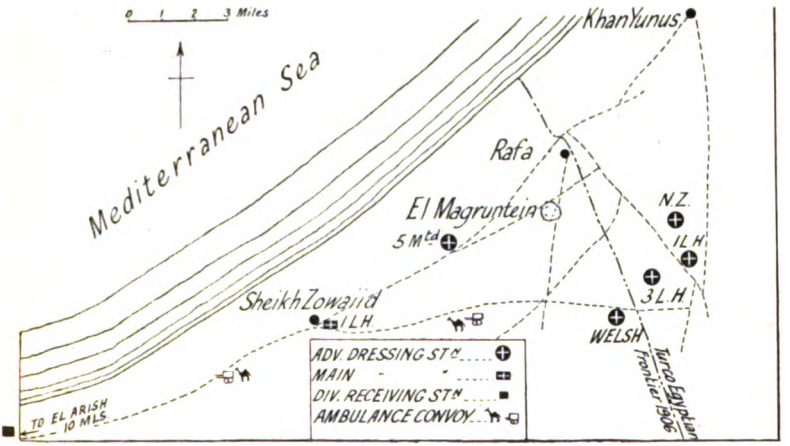
were of great value. Casualties reaching the dressing-stations steadily increased throughout the morning. At 2.30 p.m. it was apparent that there would be a large number of wounded,



and orders were sent to Sheikh Zowaiid to send forward cacolet camels and No. 1 Welsh Ambulance Convoy towards the nearest advanced dressing-station—that of the Welsh Field Ambulance. At about 4.30 p.m. orders for retirement reached the A.D.M.S., Anzac Mounted Division, and he was further informed from Desert Column Headquarters that wounded who could not be collected at once were to be left behind. A few minutes later came the added instruction that any sandcarts and sledges which arrived at the advanced dressing-stations from the firing line were not to return. These orders were passed by the A.D.M.S. through brigade headquarters to the bearer detachments behind the assaulting troops, while verbal orders were given to the dressing-stations to pack up and retire as quickly as possible. The New Zealand Mounted and 1/1 Welsh Ambulance advanced dressing-stations, with their wounded, left for Sheikh Zowaiid, as did also part of the transport and equipment of the 3rd Light Horse Field Ambulance. The number of wounded in that dressing-station

Orders for retirement

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was, however, beyond the capacity of the transport available for their evacuation; word was also received by the A.D.M.S. that large numbers still remained uncollected in the field. Reconsideration of the peremptory order concerning the transport for the wounded was obtained from the General Staff, Desert Column, and arrangements were made for No. 1 Welsh Ambulance Convoy—at this time five miles away—to be sent forward to divisional headquarters. By 5.30 or 6 p.m. clearance of wounded from the battlefield to the advanced dressing-station of the 3rd Light Horse Field Ambulance was in full swing. Divisional headquarters set out for Sheikh Zowaiid at 7 p.m. leaving on the battlefield the A.D.M.S., Anzac Mounted Division, with a general staff officer, together with one and a half squadrons of light horse, to control the collection and evacuation of the wounded. The 3rd Light Horse and New Zealand Brigades remained near the captured position till 9 p.m., when, the field having been cleared, they also left for Sheikh Zowaiid.

Anxious plight of wounded

The medical situation in the captured position at this time was an extraordinary one. Some 100 or more wounded, British and Turk, lay in the 3rd Light Horse Field Ambulance advanced dressing-station, with few blankets, no food, and no lights, all these conveniences having, in the confusion, gone back to Sheikh Zowaiid on the equipment camels. The 5th Mounted Field Ambulance, with a large number of wounded, was in a similar plight. No. 1 Welsh Ambulance Convoy, long overdue, had not arrived—the convoy had indeed received such alarming reports from retiring parties, that it had returned to Sheikh Zowaiid. All telephonic communication had accidentally been cut off, the enemy was close at hand, the night was a bitter one. Cold, hungry, and hourly expecting capture, the wounded suffered severely. Happily, the enemy held off, but it was not till early next morning that, on the arrival of the 3rd Light Horse Brigade at Sheikh Zowaiid, the Welsh ambulance convoy received orders to return to Magruntein. At 8 a.m. the wounded were sent to Sheikh Zowaiid, and early the same afternoon all the sandcarts of the 52nd Division arrived from El Arish and

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evacuated them to the receiving station there. Some of these sandcarts went out close to Rafa to bring in a number of wounded Turks who had been missed, and arrived back at Sheikh Zowaiid at 5.30 a.m. on January 11th without molestation, although the rearguard had come in. After treatment and a night's rest at Sheikh Zowaiid the remainder of the wounded were evacuated in the 1st Light Horse Field Ambulance transport and two Welsh ambulance convoys to El Arish, where they arrived at 6 p.m. Thence they were taken away to Kantara on January 12th by ambulance train, which now came within three miles of El Arish.

The total number of wounded from this action was 415 British and 162 Turks and Germans.

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CHAPTER IV

HEALTH IN THE DESERT

WITH the experience of Gallipoli to guide, the measures in this campaign for the control of transmissible diseases were directed on the most modern and scientific lines, and carried out by an efficient sanitary organisation. By vigorous sanitary methods a sensible control of the fly pest was secured. Bacteriological laboratories were established near the fighting front. The formidable problem of providing in the desert a pure water supply for some 100,000 men and animals was met by a remarkable feat of engineering, and by scientific water-control on the part of the medical service. Dysentery at no time assumed serious proportions; an outbreak of cholera was quickly stamped out.

* * *

The health of the Anzac Mounted Division during the nine months of the desert campaign, April to December, 1916, was extremely good. Statistics for this period show that the highest rate of admission to ambulances per week was 3.43 per cent[1] while the lowest was .98 per cent. During the latter part of the year the sick rate in the infantry divisions, which were under more favourable conditions and leading a far less strenuous life, was more often than not higher than that of the Anzac Mounted Division. The average weekly percentages of admissions to field ambulances for sickness were:

	Infantry Divs.	Anzac Mtd. Div.
May	1.83 ..	2.15
June	1.43 ..	2.55
July	1.16 ..	2.03
August	2.51 ..	3.10
September	2.08 ..	1.76
October	1.69 ..	1.56
November	1.82 ..	1.62
December	1.37 ..	1.24

[1] The normal average rate of admission to hospital for troops not engaged in serious fighting is laid down in Army manuals as about 2 per cent per week of strength.

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That the amount of sickness should have been so small must, under the circumstances, be looked on as remarkable, since the life of the troops was hard. They had little rest and almost no recreation; the heat by day was always great and often excessive, and there was hardly any shelter from the sun; there was little variety in the rations, which were chiefly "bully beef" and biscuits; still more serious was the scantiness of drinking water. These conditions were unavoidable, being due to the nature of the country and the limitation of transport for supplies of all kinds; for the same reason the material for maintaining good sanitation was scanty. At the same time the variety of types of disease endemic in the terrain or carried within the expeditionary force itself, which included the Egyptian Labour Corps, was exceptional.

After the Romani fighting the amount of sickness, already small, decreased, until from the middle of September the regular weekly rates of ambulance admissions were well under 2 per cent. This was due partly to improvement in the weather, which steadily became cooler, with cold nights, and partly to a diminution of the physical strain on the troops. With four brigades to share the work, periods of tactical inactivity became more frequent, as did also the forward moves of the force. Camps were occupied for shorter periods, and frequent changes of scene and the anticipation of advance into the Promised Land, where the heart-breaking sand would end, made life more interesting and conduced to health and morale. Contrary to anticipation, the very cold nights and heavy rains at the end of December brought no increase of sickness: indeed, health during this month was better than at any other time, notwithstanding the fatigues of the occupation of El Arish and the action at Magdhaba. During the early part of 1916 parties of troops were sent in relays for rest and change to a British Red Cross convalescent dépôt near Alexandria.[2] With the same object in view an Anzac Rest Camp was opened at Port Said on August 27th.

Zenith of good health

Before entering on an account of the methods adopted in the Anzac Mounted Division for preventing or limiting the

[2] *See p. 655.*

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incidence of disease and for maintaining health, it is desirable to consider certain specially interesting diseases responsible for the wastage among the Australian and New Zealand troops,[3] leaving, however, dental and venereal disease to be discussed in the final chapter.

Diseases due to physical environment—heat

It was only in this campaign, and only in this phase of it, that the effects of heat were a definite and appreciable cause of wastage. No cases of true sunstroke were seen, the majority of sun casualties revealing themselves as heat exhaustion, with a few cases of heat-stroke.[4] General wastage through these causes was confined to very few occasions, but scattered cases were frequently encountered. In the camp at Tel el Kebir also heat was responsible for the admission of cases to the No. 2 Australian Stationary Hospital, which were described as follows:—

> On May 14th cases of heat disturbance—heat exhaustion and heat-stroke—began to come in to No. 2 A.S.H., 33 between the 14th and 21st, of whom 21 were on the 16th. One Australian and one New Zealander died. Many of the cases were very ill. Temperature over 106°. Men who had been recently ill with diarrhœa, etc., or were convalescing were more susceptible. The worst cases came in flushed, breathing stertorously, unconscious or semi-delirious, and with a temperature up to 106.7°. With cool treatment—spraying, etc.—the temperature would often go down by evening, but, where a bad collapse had occurred, it might be irregularly pyrexial for three or four days.

During the Romani operations a similar outbreak of cases took place among the infantry of the 42nd Division, some 300 of whom were brought to Australian units.

> Some had been semi-conscious or delirious; about half-a-dozen were severe—their temperatures were normal or but little increased, and were really a form of heat-exhaustion and water-exhaustion. The majority on their feet again next day.

An experienced Australian medical officer records his conviction that "provided water is available in adequate

[3] Owing to the destruction of the statistical cards for the Australian troops in this campaign, detailed statistics of disease cannot be given. A table of the causes of death will be found at *pp. 770-1.*

[4] In the Anzac Mounted Division the one occasion on which this was appreciable has been described on *p. 571.* A similar but less severe occurrence took place in June. Sunstroke is produced by local heating of the brain as well as by general heating of the whole body, while heat-stroke is caused wholly by the latter (Leonard Hill). Sunstroke is a severe and often fatal dislocation of the heat-regulating mechanism, associated with hyperpyrexia and frequently acute pulmonary oedema; heat exhaustion is simple syncope (fainting), while heat-stroke lies between these, with the characteristics of syncope and pyrexia of non-extreme degree.

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amount the heat mechanism of the body can defy all ordinary climatic ranges of temperature even under conditions of hard work."

The cause of heat exhaustion and heat-stroke in the light horse and New Zealand troops was held by Lieutenant-Colonel C. J. Martin to be not only defective evaporation, as has been maintained, but excessive loss combined with grossly insufficient intake of fluid under conditions of heavy muscular effort. The moral is obvious, namely, that unnecessary water discipline may easily become a calamity if not correlated with a due regard for physiological requirements in regard to fluid intake. It is in limitation of the frequency of drinking in relation to the available water supply that water discipline is physiologically sound and militarily valuable.

Inoculation with typhoid paratyphoid vaccine (T.A.B.) was carried out effectively in the Australian force. Though at no time a serious cause of wastage, enteric fever was responsible for thirty-one cases of admission to hospital from the Anzac Mounted Division—a rate of 6.4 per thousand per annum against 7.1 for the whole of No. 3 Section.[5]

Transmissible diseases—gastro-intestinal infections. Enteric group

In point of numbers dysentery was the most important disease causing wastage at this time. A large proportion of the light horsemen had contracted the condition in Gallipoli, and, as was proved by investigation which will be described later, a number of these were carriers. Moreover, from 15 to 27 per cent of those suffering from what appeared to be simple diarrhœa were found to be cases of amœbic or bacillary dysentery.[6] The huge prevalence of flies and the shortage of sanitary equipment favoured the spread of the disease. There

Dysentery group

[5] The proportion of typhoid to paratyphoid during the Palestine campaign, so far as ascertained, was as 1 : 3. In the Gallipoli campaign it was 1 : 13. *See British Medical History: Diseases, Vol. I, p. 13.*

[6] In connection with the pathological diagnosis of these diseases (bacillary dysentery and amœbiasis) the confusion in the Gallipoli campaign which has been described (*p. 460*) was repeated in this. In the *British Medical History* (*Vol. III, General History, p. 432*) the following appears:—

"The dysentery was a relic of Gallipoli and at first was diagnosed almost universally as being amœbic in type, owing to the fact that in the protozoological examinations *Entamœba coli* had been mistaken for *Entamœba hystolitica*. As soon, however, as the laboratories were staffed with men trained in tropical medicine, the true nature of the disease was shown to be bacillary, and this continued to be the prevailing type throughout the campaign, although there

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was a considerable fall in the number of cases in the Anzac Mounted Division after August, and this fall—much greater than in other divisions—was certainly in part due to the work of the Anzac Field Laboratory[7] in detecting and eliminating carriers. The total number of cases evacuated from the Anzac Mounted Division for the months June to December, 1916, was 141, representing 29.2 per thousand per year, as against 1,107 cases—36 per thousand per year—for the whole of the troops in No. 3 Section.[8] The prophylaxis against dysentery coincided in great measure with the steps taken to prevent an outbreak of its more serious congener, cholera.

Cholera

During the Gallipoli campaign cholera was always expected: similarly it was thought probable that it would be met with in this campaign through contact with the Turks, and all possible provision was made to prevent an outbreak through any sporadic cases which might occur. Protective inoculation was carried out whenever military exigencies would permit; a strict water discipline was laboriously inculcated, with special application to the risk of infection with the cholera vibrio from wells and

was a certain proportion of true amœbic dysentery among Indian troops brought by them to the country." *See Graph p. 703.*

With due respect to its distinguished authors, this statement is open to question. On the contrary, it is suggested that the cause of the confusion at this time lay as much in the observed as in the observers, and that the discrepancies are explained more accurately by the fact—imperfectly recognised—that the detection of bacillary dysentery by laboratory methods can be made with certainty only in an early stage of the disease and under very exact conditions of investigation, whereas amœbic dysentery demands chiefly special technical knowledge—which after the Gallipoli campaign was general. The following is from a paper by H. R. Dew (Major, R.A.M.C.) and N. H. Fairley (Lieut.-Col., A.A.M.C.), *Medical Journal of Australia. 4 June, 1921* based on work at No. 14 A.G.H.:—

"Another anomaly that requires explanation is the preponderance of amœbic infections (179) over bacillary types (97). Such findings do not represent the actual incidence of the two diseases in the war zone, where bacillary dysentery was much the more frequent disease. The statistics of the field laboratories showed that bacillary dysentery was much the more common infection and the only one giving rise to epidemics of dysentery, and proved the wisdom of the policy advocated by Martin of establishing field laboratories near the front lines. In base laboratories the amœbic infections were more frequently diagnosed, because the time factor is unimportant in the laboratory diagnosis of *E. hystolitica*, whereas it is impossible to isolate satisfactorily the organisms of bacillary dysentery unless the case is investigated within the first few days of the disease."

The observations on which this paper was based were made in 1916/1917 at No. 14 A.G.H. on cases "suffering" from, or giving a past history suggestive of, colitis. The improved results in the detection of the various strains of bacilli causing dysentery made possible by more modern technique would call for some modification of the impression conveyed by the passage quoted above, but not so as to invalidate the general argument.

[7] Further details of the work carried out by the Anzac Field Laboratory are given on *p. 751.*

[8] The average ration strength of the troops of No. 3 Section from May to Dec., 1916, was 52,682: that of the Anzac Mtd. Div. was 8,291.

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other local waters. Information was always sought from prisoners as to the existence of cholera in Syria and Palestine. In July intelligence was received by G.H.Q., E.E.F., that cholera had broken out in Palestine. Steps were immediately taken, in conjunction with the administrative sanitary officer of No. 3 Section (Major P. S. Lelean), to prevent or limit the occurrence of the disease in the British force. Protective inoculation was pushed; preparations were made at Kantara for a cholera hospital with some facilities for bacteriological examination, and special examination was made of all prisoners of war. During the battle of Abd on August 9th a wire was received from a hospital in Port Said that cholera had been diagnosed in a trooper of the Auckland Mounted Rifles who had been evacuated on August 7th. Informed of the danger of an epidemic in the troops operating in that locality, the G.O.C. No. 3 Section decided that military activity should be continued, but that all precautions possible should be exercised. During the next fortnight 28 cases occurred, with 7 deaths, of which 16 were in the Anzac Mounted Division, 10 being from the 10th Light Horse Regiment. Infection came from some wells at Katia, where the Turks had been encamped, and from some Turkish water-barrels found at Hod el Hassania.[9]

An outbreak

The limitation and rapid control of the outbreak were regarded as peculiarly fortunate, since the introduction of cholera into Egypt would have been disastrous. On the last occasion (in 1896) that a case of cholera was brought into Egypt from the pilgrimage to Mecca, it was followed by many thousands of deaths. This happy *dénouement* of a situation full of menace was due not only to the administrative ability of the responsible officers on G.H.Q. and No. 3 Section Headquarters,[10] but also to the scientific prescience and personal energy of Lieutenant-Colonel C. J. Martin, A.A.M.C. With the approval of the D.M.S., E.E.F., this officer on August 23rd brought out from No. 3 Australian General Hospital to railhead personnel and equipment to form a field

[9] A jocular warning against cholera from a Bavarian ambulance was found at Bir el Abd.

[10] Col. W. H. B. Robinson, I.M.S., Col. C. H. Melville, A.M.S., and Major P. S. Lelean, R.A.M.C., whose textbooks on sanitation are well known to all medical officers.

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A field laboratory established

bacteriological laboratory, which was established at Er Rabah, beyond Romani, on the edge of the Katia palm-grove, where also a cholera isolation station was formed. The cases were tended by the tent division of the 1st Light Horse Field Ambulance, with a detachment from the 52nd Division. Cholera isolation stations, each with a laboratory, were established at Romani and Kantara. A quarantine line was drawn at Romani, and for a time no troops from the infected area were allowed west of this; a second was drawn at Kantara, to guard against the spread of disease to Egypt—an event greatly feared by the Egyptian health authorities—by incubating cases or carriers from the Egyptian Labour Corps. The chief factor, however, in preventing the spread of the disease was an order that any man suffering from more than trivial diarrhœa should be sent to the isolation camp, where bacteriological examinations were made for the cholera vibrio. These measures, and more stringent water control, sufficed to stamp out the disease. Incidentally the investigation of cases of flux made at the laboratory led to valuable results in connection with less serious types of infection, through the discovery of a considerable number of carriers of dysentery, amœbic and bacillary, and their elimination as foci of infection. On September 18th the Egyptian health authorities, satisfied with the arrangements made, approved of the lifting of the quarantine placed on the personnel in No. 3 Section, provided there had been freedom from diarrhœa for a period of three weeks. Cholera patients who recovered were discharged from the isolation camp when three successive examinations had proved negative. Special instructions were issued to all troops setting out the manner in which the disease is acquired and the measures necessary for avoiding it, the chief points emphasised being water, food, mess utensils, and flies. The outbreak ceased on August 23rd, and throughout the rest of the campaign there were only a few sporadic cases, chiefly among the Egyptians.[11]

[11] One late case in this outbreak proved difficult to diagnose. This man, though not very ill, had been regarded with suspicion, but three examinations proved negative and he was apparently well. He suddenly developed acute nephritis and died. A post-mortem examination disclosed a pure culture of the cholera vibrio in his gall-bladder, and it was found also in his intestines. Some weeks later a farrier in one of the ambulances was found with cholera organisms in his motions and was treated as a carrier.

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Diphtheria of a mild type, bacteriologically diagnosed, was curiously prevalent in the division, there being 81 cases, or 16.8 per thousand per annum, as against 5.5 for No. 3 Section. Cases were scattered throughout the units; how the infection was acquired remained in most cases a mystery. Sore throats, however, were common, and were occasionally found to be diphtheritic.

Inspiratory and naso-pharyngeal infections

There was a notable absence of other inspiratory infections and of the exanthems. No case of measles was diagnosed, and only a few of mumps. Small-pox, against which the Australian troops were effectively vaccinated, was represented by only two cases.

Malaria was not, in 1916, the serious problem that it became later; but 101 cases (20.9 per thousand per annum) were reported from the Anzac Mounted Division; for the whole of No. 3 Section the rate was 11.2. Some cases came with the 1st Light Horse Brigade from Upper Egypt, but the majority from the camps of the divisional transport details near the Sweet-water Canal at Kantara.

Specific insect-borne diseases

Louse-borne diseases prevalent in Egypt (typhus and relapsing fever) were represented by a few cases each.

Although not a cause of any considerable wastage to the light horse, mention must be made of one of the most interesting diseases encountered, bilharziasis.[12] A considerable number of Australian soldiers became infected, almost entirely during the first two years of the war. For example,

[12] This disease, which causes directly and indirectly a large mortality and widespread disability among the Egyptian native population (felaheen) of the irrigation area of the Nile Delta, is caused by a small trematode worm which lives its sexual life in the portal veins of the bladder and lower bowel of man (the definitive host). The symptoms and pathological signs are brought about by the irritation caused by the extrusion of the sharp-spined eggs of the parasite through the walls of these organs. The extraordinary life history of this trematode was worked out for a similar species in Japan in 1913, and at the period under review Lieut.-Col. R. T. Leiper, R.A.M.C., had just completed his classical observation of the Egyptian variety. There are two varieties of the worm—*Schistosoma hæmatobium*, which is most frequently found in the bladder, and *Schistosoma mansoni*, which inhabits the lower bowel, though this distribution is by no means constant and mixed infections not infrequent. On reaching water the egg, passed out with urine or fæces, hatches into an asexual free swimming microscopic miracidium, which within 48 hours must enter the intermediate host—certain species of water-snail. Asexual development in the liver of these results in the outpouring of huge numbers of minute cercariæ (2 to 4 millimetres), potentially male and female. These must pass through the skin or lining membrane of the mouth of the definitive hosts—usually man—whence again they eventually reach the portal veins. Reference is made later to the important work on this disease carried out by Australian medical officers.

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at Serapeum infection in a few of the Australian light horsemen was traced to the practice of taking showers under a pipe which discharged fresh water from a branch of the Sweet-water Canal, in which bathing was prohibited, into the Suez Canal, where it was allowed. At Salhia the danger of infection was great, since all the water came from canals that were grossly infested. By this time, however, Leiper had shown that the cercariæ were quickly killed by dilute cresol, and, further, that they died within 48 hours if they did not find a host. All water used by the troops in this town was boiled before drinking, and canvas troughs, in which water was treated with cresol, were used for bathing. In connection also with this disease the imagination of the troops was caught, and, the danger being realised, careless action was rare. In no case has infection been traced to the stay at Salhia.

Prevention of disease

To return to the question of the prevention of disease, chief among the reasons for the comparative freedom therefrom was the fine physique and stamina of the Australians and New Zealanders.[13] Second only to and in some degree consequential on this were the factors making for freedom from infectious disease presented by the life of the light horseman of frequent movement in the spacious and depopulated desert terrain which precluded any contact with native centres of disease and was unfavourable to internal epidemics arising within the force itself. A third element in the situation was the fact that the extensive organisation that had been built up during the Gallipoli campaign for the prevention of disease was available for this campaign, together with the knowledge gained in that illuminating experience. Control of transmissible diseases by removal, isolation, and appropriate treatment of cases, contacts, and carriers, centred at No. 31 British General Hospital, situated at Port Said. To this were sent all cases of important transmissible diseases other than those for which special provision was made nearer the front. The initiation

[13] The Commander-in-Chief, after a reconnaissance to Bir Bayud on May 15, wrote that he "did not think that any other troops could have undertaken this operation successfully in the present weather." It was beginning to be realised, however, during this period, though it was not so fully appreciated as later on in the Jordan Valley, that very few men over forty years of age could stand the hardships of such a campaign.

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of improvised field laboratories was a factor of the utmost importance in the success of this method of controlling infective outbreaks. But as a factor in this comparative freedom from infectious disease under very unfavourable circumstances, the various measures grouped under the term sanitation must receive due credit. The mainspring of the campaign in this matter was the A.D.M.S. (Sanitation) of No. 3 Section; to his energy and force of character was owing much of the success achieved in this direction. Sanitation presented many problems, not the least important being the human element. The sanitary discipline and methods of the Anzac Mounted Division when it entered the Sinai Desert were very bad, partly through the effect of Gallipoli, but chiefly because of the general lack of interest displayed by regimental officers. Even senior officers did not appear to realise that serious wastage in men would surely result from neglect; sanitary inspections were often regarded with amused tolerance or lightly veiled hostility: and the rank and file were naturally no more inclined than their officers for the extra work involved in personal efforts at fly control and other sanitary drudgery. In fact, a general feeling prevailed that the division "was there to fight," that sanitation was a "frill," and, as such, was a waste of time in the field. It was only after Headquarters of No. 3 Section Canal Defences had received vigorous unfavourable reports on the sanitary state of the lines in different brigades, that an effective sanitary conscience was created.[14] Though greatly

Sanitation

[14] The following notes, dated 30 May, 1916, on inspection of camps of the Anzac Mtd. Div. are of interest at this stage:—

A.L.H. Field Ambulance.

Hill 70—

A disused deep trench latrine was found uncovered and breeding large numbers of flies within 200 yards of the tents in which sick are being treated.

6th and 7th L.H. Regt. Camps.

Fly-breeding was going on in manure dumps close to both camps; vegetable refuse was being buried unburnt and loaded with fly-eggs in various pits. The medical officer of the 7th Light Horse Regiment had given no personal instructions to the sanitary corporal, who had taken over his duties for the first time that morning. None of these three units was provided with the "plane" portable incinerators, of which 50 have been supplied at urgent speed for the use of units of this division. In the 6th Light Horse camp men were occupying bell tents in the proportion of 12 men per tent. It was stated that the men of this unit had no change of underclothing.

Romani—

In every instance kitchen refuse was being buried unburnt. In every camp the kitchens were found with dirty boards on which the food was prepared; no soda was provided; no muslin had been drawn for fly-proofing of food receptacles; arrangements for enabling the cooks to wash their hands were in

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resented at the time, these reports were highly beneficial. By the end of the year, with the occupation of El Arish, sanitary methods and sanitary discipline had reached a satisfactory standard.

The sanitary organisation in a light horse formation does not differ materially from that of the infantry, except in the matter of mobility. In addition to the medical establishment already described there was in each regiment a sanitary squad (nine other ranks), whose duty was the actual performance of the work connected with sanitary measures. In most regiments this squad was placed directly under the orders of the regimental medical officer, but in some under the quartermaster. Though technically the commanding officer of a unit was responsible for the sanitation of his command, as a matter of practice, if sanitary defects were discovered, the regimental medical officer frequently received the greater share of blame.

The regimental squad

An appointment which was unofficial and almost peculiar to the light horse, but which was found of great use in practice, was that of "Brigade Sanitary Officer"; an officer was usually appointed from the corresponding light horse field ambulance, his duties being inspection of sanitary defects, with report to the brigadier, and advice in sanitary measures. On divisional headquarters the Deputy-Assistant Director of Medical Services made periodical inspections of the units, concerning himself especially with the work of the sanitary section.

"Brigade sanitary officers"

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most instances most unsatisfactory; foul sand was being used for scouring of cooking utensils; grease-traps were conspicuously absent; no clean towels were provided for drying eating utensils, even in officers' messes. Medical officers were ignorant of general routine orders relating to sanitary matters and supplies. The headquarters of the brigade had no copy of important orders conveying these particulars. The neighbourhood of tents and camps was extensively used as dumping ground for food and food-tins, which attracted swarms of flies; active fly-breeding was going on, and these deposits were alive with larvæ. Natives have been seen thrusting their arms into the watertanks to dip water out.

New Zealand Mounted Brigade.

Refuse dumps with extensive fly-breeding within 20 yards of the kitchen; surroundings littered with tins. The M.O. had no knowledge of the medical history of the cooks, of the rations issued to the troops, was ignorant of all details of cooking and variety of meals, and maintained no observation of the cooks' health.

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84. An Ambulance convoy *en route* from El Arish to railhead

Aust. War Memorial Collection No. A2737.

85. The Desert Mounted Corps rest camp at Marakeb

Aust. War Memorial Collection No. A2736.

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86. A DELOUSING PARADE

The delousing train was designed under the direction of Colonel W. Hunter, R.A.M.C.

Aust. War Memorial Collection No. H14065.

87. PREPARATION OF DRINKING WATER IN THE WADY GHUZZE

Lent by Major R. G. Woods, A.A.M.C.
Aust War Memorial Collection No. H14066.

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The Anzac Mounted Division had at first no sanitary section. At the beginning of June special permission for the formation of one was obtained from the G.O.C., A.I.F. in Egypt, and five weeks later the Anzac Mounted Division Sanitary Section (No. 7) took up its duties in the field. Its personnel comprised members of both the A.A.M.C. and the New Zealand Medical Corps under an Australian medical officer.[15] As first constituted, the section had an establishment identical with that of a corresponding unit with infantry. The personnel was not mounted, and in carrying out their duties with the regiments had often to bivouac with them because of distance. When the division or part of it moved forward, it had to do without the sanitary section until railhead had advanced sufficiently. It was not till later in the campaign that this serious defect was remedied. At the time, for instance, when El Arish was occupied and serious water problems arose, the section could not be brought up for a fortnight.

Divl. San. section

By Field Service Regulations the duties of a sanitary section comprised inspection, supervision, advice, and special technical duties, but the greatest value of the Anzac Mounted Division Sanitary Section probably lay in its constructional work.[16] Sanitary equipment is normally supplied by the engineers and ordnance—chiefly the former. Before the advent of the section the standard of sanitary construction was low, hampered as it was by continual shortage of materiel. To meet the most serious deficiencies the section took such construction in hand and throughout the campaign was always ready to supplement the work of the engineers in this department. In the advance after Romani the lack of latrine seats, incinerators, safes, and so forth, was severely felt. This led to the construction of sanitary appliances portable on camels, and, early in 1917, to a supply of camels for its transportation. Though it lies beyond the scope of this chapter, it may be stated here that, as the

Portable sanitary equipment

[15] The formation of this unit represents the first instance in which a sanitary section was attached to, and formed part of, a mounted formation.

[16] The views here expressed concerning the work of a sanitary section should be read in conjunction with the accounts of the work of these units in the A.I.F. elsewhere.

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campaign progressed, the quantity and pattern of portable equipment was modified, and when harder soil was eventually reached in 1917 camels were replaced by wheeled transport. Without doubt this portable sanitary equipment must be accounted one of the most valuable measures evolved during the campaign for the prevention of disease.

The most important matters calling for sanitary activities at this time were the control of water-supplies and their purification, the disposal of excreta, the suppression of the house-fly, and the control of the body-louse. In connection with each of these, sanitary control presented some features special to the campaign.

Water

Water was the dominant consideration in this campaign, and the first in planning any military operation, the provision of an adequate and safe supply being often a matter of great difficulty. It is not easy for a person living under the conditions of modern civilisation to realise the significance that water assumed to everyone in the Sinai Desert, or the difference made to health and morale by its scarcity or plentifulness.

From Nile

The source of supply was twofold—local wells, and the Sweet-water Canal at Kantara, whose water came *viâ* the Nile from Central Africa. The last named was by far the more important. In its passage through Egypt this water had become to all intents liquid sewage, the number of micro-organisms per cubic centimetre being uncountable and their variety perhaps unequalled among waters. At Kantara it was purified by straining, clarification by alum, filtration through sand under pressure, and chlorination. It was brought to the front by pipe-line or water trains, and at railhead was put into fantasses (rectangular metal receptacles holding from ten to twelve gallons); in these it was taken on camels (a fantasse on each side) to the troops in the field. At railhead, or on reaching the unit, it was again chlorinated. This chlorination was very unpopular with the troops. The unpleasant taste resulting from it was due, not—as was universally believed—to over-chlorination, but most often to the inertness of much of the bleaching powder supplied,[17] which gave off so little

[17] *i.e.* with less than 30 per cent. chlorine.

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chlorine that it was necessary to use large quantities to obtain the concentration required.[18] It was the resulting sludge that caused the unpleasant taste. In some few cases the blame was due to chemical reaction between bleaching powder and rust, or to some abnormal chemical content of the water. Water from native wells was always, and often justifiably, under suspicion, and it became necessary to give instructions that well water might be used only when boiled. Tablets of sodium bisulphate were supplied to sterilise water in waterbottles.[19] After the cholera outbreak a system was organised under which each newly-found well was at once chlorinated and a report to that effect sent to divisional headquarters. Special water-testing parties, with medical officer, accompanied reconnaissance columns, their duty being to investigate all new supplies. In the latter part of this period, water was obtained by a spear-point pump, which gave a supply free from surface contamination.[20]

From wells

The fly problem in this campaign was one of prime importance and at the same time presented stupendous difficulties: the measures taken to overcome them met with remarkable success.[21] It is not too much to say that the work of Major E. E. Austen, R.A.M.C.—continued in this campaign from researches begun in France and on Lemnos—was one of the outstanding features in the sanitary history of the war. "Sanitary" measures in the Sinai campaign were indeed to a large extent directed against the fly as the most important disease-producing agent. Its chief home was in the palm *hods*, but it abounded wherever there was animal life. Under the palms, where insanitary Arabs had camped for centuries, and where there was high temperature combined with plenty of moisture and organic refuse, breeding went on to an astonishing extent. After a time it became the custom to

Flies

[18] Commonly one part of chlorine per million as estimated by Horrock's test apparatus.

[19] The men soon discovered that these tablets quickly burnt through clothes and had a powerful action in removing rust from stirrup-irons, and they could not, therefore, be persuaded to use them, since they visualised an analogous action on the stomach.

[20] For an account of the remarkable success achieved in scientific water-supply from subterranean sources, see *British Official Medical History*, "*Hygiene*," *Vol. I.*

[21] *See Part I, chap. XVI.*

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place the horse-lines in the *hods* and men's bivouacs in the open. For some time the troops were blamed for the prevalence of flies, and at first there was some truth in the charge, but as the campaign advanced and sanitary organisation and "sanitary conscience" improved, a high standard of fly-prevention within the units themselves was reached. Within the force fly-breeding took place chiefly in horse manure, human excrement, and kitchen refuse. Without special precautions, burial of these was useless; if it was shallow, they were apt to be uncovered by windstorms, and the entire absence of humus in the sand made such material practically imperishable. If buried deeply, the larvæ could burrow up through six feet or more of sand to pupate, and the fly, after hatching from its puparium, was found to make its way to the surface through at least two feet more. Incineration was difficult owing to the extreme shortage of fuel. But with the advent of the sanitary section greater facilities for destruction by fire were gradually afforded, and improved methods applicable to mobile troops were evolved. Horse manure was dried by spreading it in thin layers, so that heat removed the moisture before breeding could take place. Manure thus spread was useful for forming roads by binding the sand. Breeding went on at once if the layers were thicker than two inches. In connection with the latrine and refuse pits the burrowing power of the fly was defeated by sealing the top with sacking soaked in "C" solution (a heavy oil) or with mud intermixed with tibbin with a two to three feet overlap.

Against the adult flies little could be done in the desert by way of destruction, but various poisons, such as arsenic and formalin, were exploited, and, chiefly to satisfy G.H.Q., methods of direct destruction were adopted, such as the use of fly-papers, and by "flaring" tents at night. Under the conditions of bivouac life the protection of food from flies presented great difficulties, and it was rather with measures against the access of the flies to excreta that the activities of the sanitary section and of administrative sanitary officers were concerned. Fly-proofing of latrines became general in all camps.

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Under the circumstances of the campaign a heavy louse-infestation was inevitable: in the fighting force the proportion of infested men at the worst period ranged from 45 to 70 per cent. A primary source was the Egyptian labourers who are universally infested, and whose religion prohibits the killing of their tormentors. Despite periodical disinfesting and careful supervision from General Headquarters, there was always a large proportion who were lousy. The troops had little opportunity for washing their persons—the sea provided the only facilities for bathing—and scarcely any for washing clothes. In the summer few men were lousy, but in the winter contiguity induced by the cold led to rapid spread of infestation.

Lice

Efficient delousing, carried out by the sanitary section, was a difficult problem. Several methods were employed, but the only one that was effective on a large scale was the high-pressure railway-van steam disinfector, which dealt with the kits and blankets of a mounted brigade (2,000 men) comfortably in a day and a half. Its use, however, could be obtained only occasionally, since there was only one for the troops and native labourers employed over the wide area of No. 3 Section. The Serbian barrel and Newman disinfector were found unsatisfactory. The Thresh disinfector (part of the equipment of a sanitary section) was too heavy and cumbersome for a mounted division, and could be used only at a railway siding. But a light mobile disinfector found abandoned in a damaged state by the Turks at Bir el Abd, and repaired by the sanitary section, proved of great value and was used till the end of the war. For desert work it was fitted with pedrails and pulled by six horses; on the road two were sufficient. The most difficult problem was the disinfesting of riding breeches faced with leather, which was ruined by heat long before the lice were killed. For these the best method was found to be the application of a one-in-forty dilution of Lefroy's solution[22] after vigorous brushing of the seams: this was found to reduce the lice infestation to 3 per cent—calculated after an interval of a fortnight to permit of the hatching of eggs.

The delousing problem

[22] The basis of this solution is an extract of pyrethrum.

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To systematic delousing, as to every sanitary procedure, much active obstruction, and even more passive, was encountered, and had to be overcome. To eliminate any stigma of uncleanliness, every man in the unit from the commanding officer down was expected to participate. When co-operation was once achieved by tact and determination, this, like other sanitary problems, became comparatively simple.

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SECTION II—THE CAMPAIGN IN PALESTINE

CHAPTER V

THE FIRST PALESTINE OFFENSIVE: THE ATTACKS ON GAZA

WITH the arrival of the force on the borders of Palestine the period of desert warfare passed and with it the dominant rôle of the mounted troops. In the two battles described in this chapter the infantry divisions played the leading part. Important developments in organisation took place, but these were not—as later—associated with drastic revision of the method of employing the medical units of the mounted formations; in both battles the medical tactics pursued were similar to those adopted in the desert. It had become possible, however, to use wheeled transport, and in the second unsuccessful attempt upon Gaza some motor ambulance waggons were employed by the field medical units and helped to solve a crisis that occurred for them in the closing phases of the battle.

* * *

After the action at Rafa the campaign entered on a new phase. The plan of protecting Egypt by the occupation of El Arish and driving the enemy across the border had been achieved.[1] By the beginning of 1917 the British War Cabinet had decided upon operations on a larger scale in Palestine. Because, however, of the expected offensive in France, these were to be deferred till autumn, preparations meanwhile being made during the summer. It was apparent to the Commander-in-Chief, E.E.F., that such preparations

[1] The clearance of the Turk from Egypt was completed by a bloodless expedition to Nekhl, the capital of Sinai, ninety-six miles distant from Serapeum. This was carried out by troops from the central and southern sections of the Canal Defences, among which the 11th L.H. Regt. was included. Proceeding by the Central and Southern roads they occupied Nekhl on Feb. 16, and after a few days' occupation the force returned with prisoners and captured guns. Apart from the fact that the sandcarts could not be taken nearer than seventy-five miles from Nekhl, so that any wounded would have had a three days' journey on camels, the expedition was of little medical interest.

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would be greatly facilitated if the Wady Ghuzze were held. On March 5th, when the British railhead reached Sheikh Zowaiid, the enemy withdrew from Shellal to a line from Gaza to Beersheba, and General Dobell, commanding the Eastern Force, accordingly planned to attack Gaza at the end of March. To this the Commander-in-Chief agreed.

The new terrain

With the entry into Palestine there came a change in the nature of the country that greatly modified the conditions of the campaign. At El Arish the desolate waterless sandy desert begins to give place to a firmer soil, though a coastal belt of soft sand-dunes continues for some miles beyond Gaza. While no formed roads existed until some miles beyond that city, a small amount of vehicular traffic was possible beyond Sheikh Zowaiid. Good supplies of well water abounded in this new country, though not in sufficient quantity to make unnecessary the pipe-line from the Canal. These factors permitted the use of infantry in addition to the mounted troops—which so far had borne almost the entire brunt of the fighting—and allowed the provision of supplies for the maintenance of a far larger field force. Gaza could not be attacked till the railway ran farther forward, and two and a half months elapsed in making ready, during which time the cavalry moved forward step by step, followed by the infantry.

Imperial Mounted Division formed

To meet the new requirements and new conditions, considerable changes were made in the organisation of the Eastern Force. The Sinai campaign was fought to a great extent by Australian and New Zealand troops; henceforward these were to be but a part of the striking force and—as the campaign advanced and the army grew—a smaller and smaller one in proportion. To increase the radius and mobility of the Desert Column a new formation was made possible by the release of mounted troops from the Western Desert.[2] This—the Imperial Mounted Division—was formed from the 3rd Light Horse Brigade (with which went the 3rd Light Horse Field Ambulance) and two British yeomanry brigades (5th and 6th Mounted). The D.A.D.M.S.

[2] *See p. 570n.*

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appointed to the new division was Major M. W. Cave, A.A.M.C., an able and forceful officer who fitted in well with his A.D.M.S., Colonel R. H. Luce, A.M.S. In February the creation of a new Australian light horse brigade, the 4th, led to the formation of the 4th Light Horse Field Ambulance, the personnel for which was obtained from existing field ambulances, with a draft of general reinforcements from the training dépôt. It became part of the Imperial Mounted Division.

Composition of the army

The Eastern Force at this time consisted of (1) the Desert Column, comprising the Anzac Mounted, Imperial Mounted, and the 53rd Divisions, (2) the 52nd and 54th Divisions and the Imperial Camel Corps Brigade.

Increased mobility

The prospect of operating in less sandy country naturally turned the thoughts of everyone to the possibility of more convenient forms of transport. After a reconnaissance to Khan Yunus (the reputed home of Samson's Delilah) towards the end of February, it had been reported that the country was suitable for the ordnance-pattern light ambulance waggon. As a matter of fact, it was suitable for such vehicles only so long as traffic had not cut it up; and it required very little traffic to do so. Though not supplied to field ambulances, a limited number of light motor ambulance waggons were made available for the D.D.M.S., Desert Column. For the mounted ambulances, however, an increase—several times urged by the Assistant-Director of Medical Services—in the number of vehicles and animals was granted, with the result that the mobility of these units was greater now than at any other time. Under the revised establishment the personnel totalled 129 whites and 51 native camel drivers for each unit. All were mounted on horses or camels. The vehicles — 12 sandcarts, 6 sledges, 2 cycle ambulance stretchers,[3] and 25 pairs of cacolets—gave a carrying capacity of 82 cases; animals numbered 119 horses and 99 camels. With such an establishment field ambulances were suitably constituted to carry out their function.

[3] Composed of a frame on which a stretcher could be loaded, carried on two large wire wheels, with rope wrapped round the rims, and with two shafts. They were not found satisfactory.

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On March 10th No. 2 Australian Stationary Hospital was established at El Arish, where a special hospital siding was constructed. In connection with this two ambulance trains worked, one from the front, the other to the base. On March 20th General Dobell moved his headquarters to Rafa, and on 24th issued orders for battle. The medical arrangements provided for a casualty clearing station at Khan Yunus, the railhead. In view of the possibility of infectious disease being prevalent among enemy prisoners, the Anzac Field Laboratory was brought to Rafa.

Stationary hospital

The First Battle of Gaza was fought on March 26th and was chiefly an infantry engagement. The task of the mounted troops was primarily envelopment and protection.

The town of Gaza is built on a plateau about 200 feet high, some two miles from the sea, and separated from it by a belt of sand-hills. On its south-east a conical hill, Ali el Muntar, dominates the town and surrounding country. The plan for the battle provided for an attack from the south by the 53rd Division: the mounted troops would form a screen north-east and south-east to prevent the enemy's retreat and hold up reinforcements from Beersheba or Huj. The mounted formations included the Anzac Mounted Division—2nd Light Horse, New Zealand Mounted, and 22nd British Mounted Brigades; and the Imperial Mounted Division—3rd Light Horse, 5th and 6th British Mounted Brigades—together with the Imperial Camel Corps Brigade; all these were under the command of the Desert Column. The 54th Division in support and 52nd in reserve were directly under the Eastern Force. On March 25th, after a reconnaissance across the Wady Ghuzze, the mounted troops, with the mobile sections of their field ambulances, assembled at Deir el Belah; here the immobile sections of the Anzac Mounted Division also arrived, exhausted after a nine hours' march from Rafa. At 2.30 a.m. on the 26th the mounted divisions and Camel Brigade, with the mobile sections of field ambulances, and, later, the Anzac Mounted Division immobile sections and all ambulance camel transport, moved out to reach their

First Battle of Gaza

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outpost positions north-east and east of Gaza. Heavy fog impeded the movements of the attacking force. Crossing the Wady Ghuzze, the Anzac Mounted Division formed an outpost line centred on Beit Durdis; the Imperial Mounted Division and Camel Brigade, at Khirbet Sihan and Sheikh Abbas, formed a screen against enemy reinforcements, advancing along the Gaza-Beersheba road. At Khirbet Sihan a divisional collecting station[4] was formed by the tent division of the 5th British Mounted Field Ambulance. The infantry attack from the south, delayed by fog and the strength of the position, had made little progress when, at 2 p.m., the Anzac Mounted Division was ordered to attack Gaza from the north. The Imperial Mounted Division moved to Beit Durdis, and the Camel Brigade to Khirbet Sihan, to form the outpost line. Australian mobile sections accompanied their brigades, while their immobile sections and the camels—which had crossed the Wady Ghuzze at 11.30 a.m. and reached Sheikh Abbas at 1.30 p.m.—were ordered to Beit Durdis. At 6 p.m., in consequence of increasing pressure by relieving Turkish forces on the Imperial Mounted Division and Camel Brigade, the Anzac immobile sections and cacolet camels retired, recrossed the Wady Ghuzze, and reached In Seirat at 2 a.m. next day, having marched forty-three miles in forty-one hours without receiving any wounded. Meanwhile, despite the capture of Ali Muntar by the infantry and the effective envelopment of the city by the Anzac Mounted Division, the situation, as night came on, was such as to impel Lieutenant-General Chetwode to break off the engagement. Reluctantly the Australian mounted troops withdrew from their position, which appeared to them to be well in hand. The retreat began close on midnight and was covered by the Imperial Mounted Division and Camel Brigade. At 6 a.m. on the 27th the Anzac Mounted Division recrossed the Wady Ghuzze unmolested. In retiring the Imperial Mounted Division and Camel Brigade fought a rearguard action. Through loss of direction in the

[4] This term was now being used in the mounted formations much as it normally was in the infantry, namely, to designate a forward station to which all the wounded of the division were collected before removal from the field.

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darkness the 3rd Light Horse Field Ambulance was the last unit to withdraw and, as day dawned, found itself beside a ridge covered with Turks. The order was given to gallop; the Turks did not open fire, and the party escaped without a casualty. The wounded from the Anzac Mounted Division, numbering forty-three, with thirty-seven from the Imperial Mounted Division, were evacuated to the Welsh Field Ambulance near Belah. They had been handled only by the mobile sections. The immobile sections, unfitted by their immobility to be of service in the field, had been entirely occupied in marching and counter-marching; those of the Imperial Mounted Division had not left Rafa at all.

Field ambulance in tight corner

On the other hand, the mobile sections, though they had had little to do with wounded, had once more proved their ability to face with the fighting troops all the requirements of rapid movement, and to be ready under all circumstances to carry out their functions as an integral part of a mobile formation.

Advantages of mobility

On March 27th-28th the whole British force was withdrawn to Deir el Belah and Khan Yunus. The total casualties were just under 4,000, including 2,932 wounded, with a high percentage lightly wounded. These casualties were suffered almost entirely by the 53rd Division and the 161st Infantry Brigade of the 54th Division.

On April 5th railhead reached Belah, which became headquarters of the Eastern Force. The 74th Division arrived early in April, bringing the force to four infantry divisions.

At the end of March the War Cabinet, for the moment on the crest of a wave of optimism and imperfectly acquainted with the situation on the Eastern Front, intimated that steps should be taken without delay for the capture of Jerusalem. A second attack on Gaza was planned by General Dobell, to be carried out in two stages. In the first the 52nd and 54th Divisions were to attack from the sea to Sheikh Abbas, so as to be within striking distance of Gaza. In the second (two days later) the 53rd, 52nd, and 54th Divisions and the Imperial Camel Corps Brigade were to attack Gaza from the south-west.

Second Gaza

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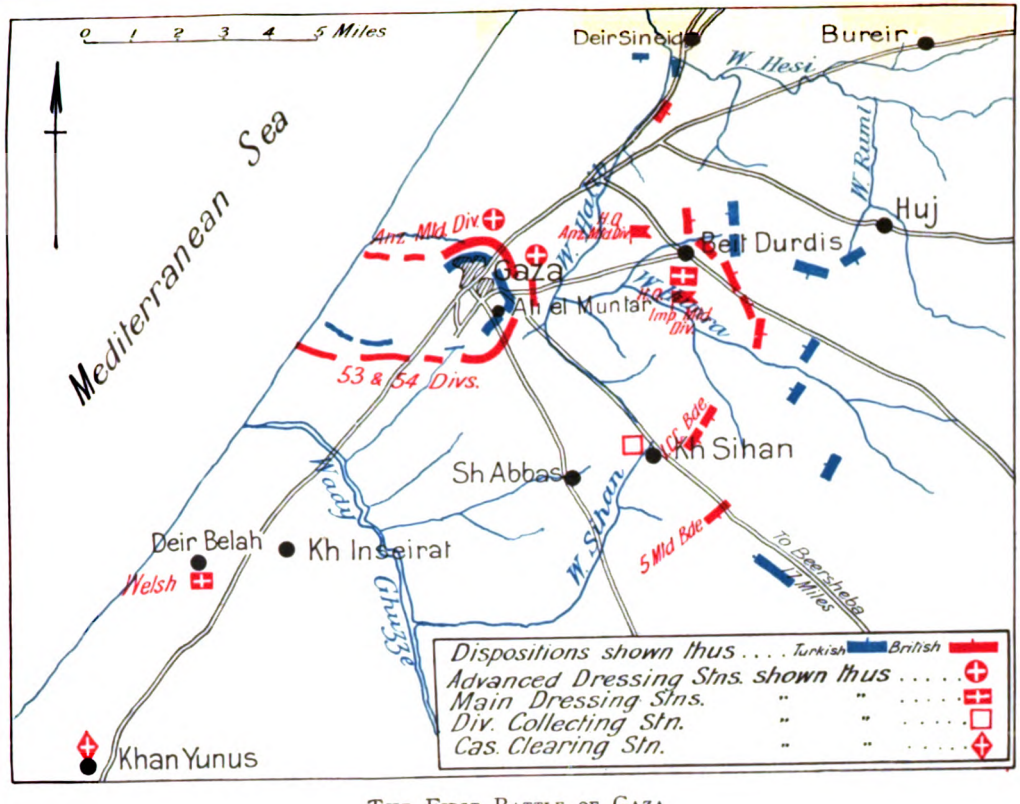

THE FIRST BATTLE OF GAZA

Map No. 15

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south, and south-east, in order. The Anzac and Imperial Mounted Divisions were to carry out a containing attack on the right towards Abu Hareira.

Medical arrangements made for the mounted troops by the D.D.M.S., Eastern Force, provided for evacuation to the 53rd British Casualty Clearing Station at Belah. From the clearing station the railway siding enabled wounded to be taken either to No. 2 Australian Stationary Hospital at El Arish or through to Kantara. Thirty-six Ford ambulance waggons had been supplied for the use of the Desert Column. Six of these were allotted to each mounted division, while the remaining twenty-four served as a motor ambulance convoy controlled by the D.D.M.S., Desert Column, which was to run between divisional receiving stations at Tel el Jemmi—a prominent hill, which, on the west side of the Wady Ghuzze, marked a crossing—and the casualty clearing station.

Ford ambulances allotted

Orders had been given by the D.D.M.S., Desert Column, that the camels of all the mounted field ambulances were to remain at Belah till Gaza had fallen. As this would entail the retention there of some of the tent division personnel of the mobile sections and the whole of the immobile sections, the order was eventually modified to allow part of this personnel, with some camels for equipment, to be taken forward to form the divisional receiving station for each division. The proportion thus sent forward, however, was only small, and the result that many ambulance men and transport animals remained idle at Belah while badly needed during the fighting.

Defective arrangements

The Second Battle of Gaza was begun on April 17th and ended on the 19th. In this fight the medical services of the mounted divisions were confronted with conditions which were novel to them. It was essentially an infantry operation, and the mounted troops, so far as they were engaged, took the rôle of infantry and made a frontal attack across the open on prepared enemy positions. On the part of the medical service,

The battle

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casualties were collected under view of the enemy in a country devoid of cover, and in numbers far greater than usually fall to the lot of a cavalry field ambulance in so short a time.

The infantry attacked on April 17th and captured the Sheikh Abbas ridge, but made little general progress. At night it held a line Sheikh Ajlin–Sheikh Abbas some three miles from Gaza. The Imperial Mounted Division meanwhile remained at Tel el Jemmi (Headquarters of the Desert Column), while the Anzac Mounted Division watched the country to the south-east, its only casualties being from aeroplane bombing. A divisional receiving station was established early in the morning at Shellal. Aerial bombings were frequent, and the field ambulances suffered serious loss of equipment and animals as well as some personnel. April 18th was spent by the infantry in consolidating its position and preparing for the final attack. The Anzac Mounted Division held an outpost position guarding the right flank. its casualties again being from bombing only, though they were considerable. During the night of the 18th this division marched to Khirbet Erk to support the Imperial Mounted Division in an operation which was planned for the 19th against the strong Atawineh redoubt, 9 miles south-east of Gaza on the Gaza-Beersheba road.

The battle took the form of a direct frontal attack by the infantry, which was unsuccessful, only a slight advance of the line being made and heavy casualties sustained. The mounted troops were dismounted, and made their allotted attacks: the Anzac Mounted Division occupied Baiket es Sana, but, as with the infantry, no material progress was made. The final attack planned for the 20th was not made, since the prospect of success was considered by the G.O.C. insufficient to justify the heavy casualties that would be involved. The position achieved, Sheikh Ajlin–Sheikh Abbas–Tel el Jemmi, was consolidated, and was destined to form the British front for the next six months. The total casualties were 6,444, including 4,359 wounded. Of these casualties 5,328 fell to the infantry.

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The special feature in the evacuation of wounded from the light horse formations during this engagement was the use, for the first time in this campaign, of motor ambulance waggons. These were of the Ford type, and were employed between the divisional collecting stations and the divisional receiving stations. Their use east of the Wady Ghuzze had been prohibited, but the feasibility of crossing both Wady Ghuzze and Wady Sheria having been demonstrated to an officer of the general staff of the Desert Column, the order was rescinded. Successful evacuation of the heavy casualties on the 19th was made possible by means of these motor waggons. In the Australian brigades personnel of field ambulances were attached beforehand to regimental establishments to maintain inter-communication.

Motor ambulances employed

The retirement by which this battle ended placed some of the medical units in a dangerous, not to say critical situation. The mobile sections of the field ambulances of the Imperial Mounted Division had formed dressing-stations immediately behind their corresponding brigades, clearing by sand-carts from the regimental collecting posts. That of the 4th Light Horse Field Ambulance lay in an open space behind a slight ridge, a few hundred yards in rear of the regiments and in front of brigade headquarters and the guns.[5] This ambulance was newly arrived from Ismailia, and consisted of one section only. The greatest number of casualties passed through it, the wounded including many from the camel battalions—now attached to the infantry—operating on the left of the brigade. At 2 p.m. the 4th Light Horse Brigade was forced to retire, the dressing-station of the 4th Light Horse Field Ambulance being left crowded with wounded in advance of the front line. These latter were rushed back in water-carts, ammunition limbers, and any vehicle available.[6] The 3rd Light Horse Field Ambulance had a

[5] An inspection of the ground at a later date showed that the enemy must have respected this ambulance, which was in full view of their trenches.

[6] The fact that clearance of this station was safely accomplished (only one, dead, being abandoned when the station was left) was in no small measure due to the action of the D.A.D.M.S. of the division. Contrary to the previous orders of his divisional commander—whose approval because of the urgency of the situation had to be anticipated—he caused twenty led horses per brigade to be brought up three miles from the rear for the transportation of the lightly wounded.

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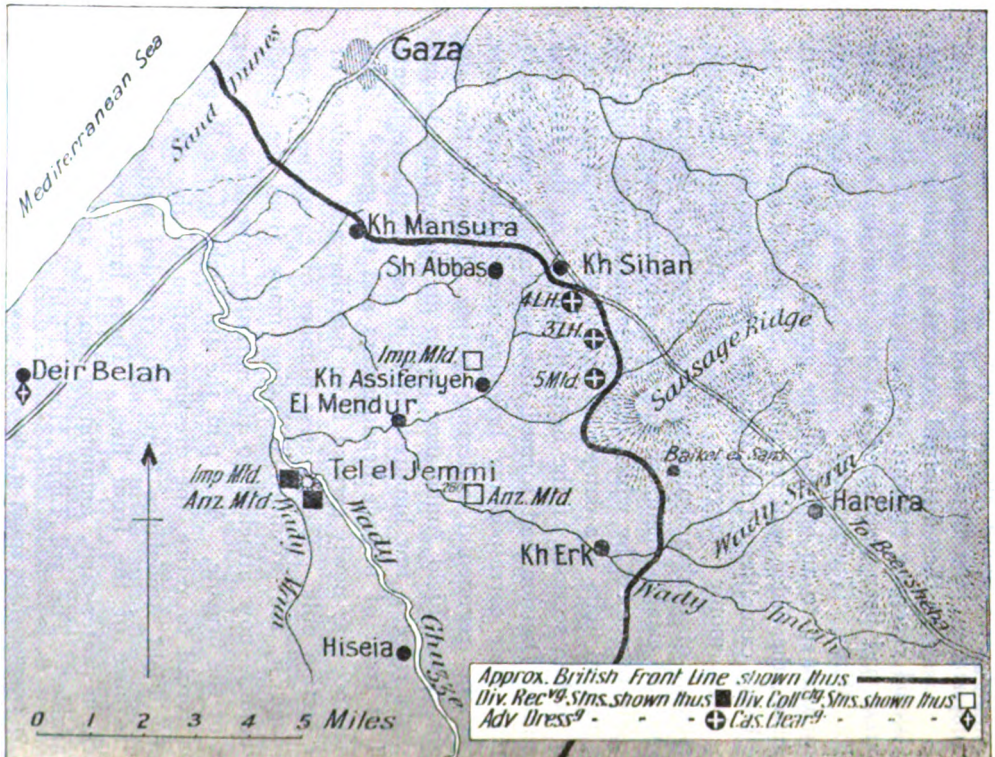

THE SECOND BATTLE OF GAZA

Map No. 16

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very similar experience. The diversion of its sandcarts from the front to the rear of the dressing-station led to great congestion in the regimental collecting post and to further casualties among the wounded. From this station over 300 were cleared under great pressure—as many as 9 being taken in one sandcart. The divisional collecting station was formed at Khurbet Aseiferiyeh by the mobile section tent division of the 3rd Light Horse Field Ambulance. The divisional receiving station was placed at Tel el Jemmi and was staffed by 2 officers and 14 men of the 6th (British) Mounted Field Ambulance. The sandcarts of this division had been pooled: 24 were employed in front of the divisional collecting station while the remaining 20 were diverted to supplement the motor ambulance waggons in transportation therefrom to the receiving station. The divisional collecting station, with its small staff, was hard put to it to deal with this rush of wounded, and was reinforced during the day by parties from the 5th and 6th (British) Mounted Field Ambulances. At 6 p.m., the retirement of the division made necessary a forced clearance to Tel el Jemmi, four and a half miles in rear. In this operation the motor ambulance waggons played an essential part. The clearing from the Anzac Mounted Division was without dramatic incident. Only the New Zealand Mounted Rifles Brigade, which supported the 5th (British) Mounted Brigade (Imperial Mounted Division) in an attack on "Sausage Ridge," was engaged in heavy fighting. The divisional collecting station was formed near divisional headquarters, on the Wady Sheria, from the tent division of the 2nd Light Horse and New Zealand Mounted Field Ambulances mobile sections. Just prior to the operations, the divisional receiving station was moved to Tel el Jemmi. Motor ambulance waggons, crossing the wady at Hiseia, worked between the two. The last casualties were cleared to the divisional receiving station by 11 p.m.

The receiving stations

Through the two receiving stations at Tel el Jemmi passed the casualties from both divisions and many from the camel battalions. The first arrived at 4 p.m. At 5 p.m. the Anzac Mounted Division Receiving Station, though isolated and marked with Red Cross ground sheet, was heavily bombed. By 11 p.m.

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both stations were congested. Evacuation to the casualty clearing station at Belah, carried out by motor ambulance convoy assisted after midnight by a camel convoy, was completed by midday of the 20th, the last batch of wounded from the field having arrived at 4 a.m. This was the first and almost only battle in the campaign in which it was possible for a man from the mounted division to reach a casualty clearing station on the same day. Among the wounded were a number of cases of fractured femur, and as the Thomas splint—in spite of its recommendation by Robert Jones in the first month of the war—had not yet appeared in the field, these dreadful cases were tediously and miserably splinted with "long Listons."

The wounded dealt with by the mounted field ambulances totalled 925—290 from the Camel Brigade, 448 from the Imperial Mounted Division, and 187 from the Anzac Mounted Division. Of these 762 had passed through the mobile sections of the ambulances of the Imperial Mounted Division. The engagement had imposed a great strain on the divisional medical service. Through the retention of part of the personnel of all units at Belah and its loss for use in the field, the ambulance staff transport and equipment available were insufficient for the effective treatment and transportation of so many casualties in so short a time. But if, by reason of mistakes and the vicissitudes of a losing battle, the manner of clearance and immediate treatment of the wounded left something to be desired, their evacuation was carried out with exemplary smoothness and celerity. The first casualties were received by the field units at 7.30 a.m. of the 19th, and by midday of the 20th all had left the divisional area. The medical services of the mounted formations had, indeed, reached a high state of efficiency during the eventful series of operations and movements which marked the course of the campaign.

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CHAPTER VI

PREPARATIONS FOR THE SECOND OFFENSIVE. HEALTH DURING 1917

AFTER the second failure at Gaza a long pause in the main operations supervened. Under a new commander-in-chief, the force was reorganised in three corps of which one comprised the great part of the mounted troops. Preparations for the use of this corps in extended cavalry operations necessitated, on the medical side, the organisation of a receiving station under corps control. Other important innovations were made. During this time the health of the troops was excellent, but the strain of service had to be met by the establishment of "rest camps"; and the occurrence of cases of malaria gave presage of the most serious medical problem of the whole campaign.

* * *

As the result of the battles of Gaza the Turks were greatly strengthened in both force and morale, and General Murray informed the War Cabinet that for an advance he would require two more divisions. Influenced by the failure of the French offensive in Champagne, by the Turkish concentration for the capture of Baghdad (made possible by the collapse of Russia), and by the desire to get all the troops they could away from the unpromising Macedonian campaign, the War Cabinet decided to provide these reinforcements. Two divisions were brought from Salonica, another was formed in Egypt. Immediately after the Second Battle of Gaza Lieutenant-General Sir P. Chetwode took over command of the Eastern Force from Lieutenant-General Dobell; Major-General Chauvel (A.I.F.) was given command of the Desert Column, Major-General E. W. C. Chaytor (N.Z.E.F.) replacing him in the Anzac Mounted Division. On June 27th Sir Edmund Allenby succeeded Sir Archibald Murray as Commander-in-Chief of the Egyptian Expeditionary Force. His personality and forcefulness, which were made apparent to the troops by his frequent visits to

Arrival of Allenby and new divisions

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the forward areas, quickly produced an astonishing change in the morale of the British troops. In place of the old feeling that the troops in this theatre were to a great extent forgotten and neglected, there arose the certainty that, with the arrival of new British troops, guns, and, above all, up-to-date aeroplanes, victory lay before them.

Murray's achievement in securing the safety of Egypt made it possible for the new commander-in-chief to make his headquarters in the field. After reconnoitring the Palestine front, Allenby moved the headquarters of the E.E.F. from Cairo to the vicinity of Rafa, and proceeded to reorganise his command. The "Eastern Force" was abolished, and the troops east of the Canal were formed into the Desert Mounted Corps, XX Corps, XXI Corps, and Palestine Lines of Communications. Important changes were made at the base also. Kantara replaced Alexandria as the base for reception and distribution, quays for ocean steamers were built along the Suez Canal, and immense dépôts of stores and accumulations of remounts grew up there. The duplication of the strategic railway and pipe-line, already begun, was pushed forward, and large quantities of mechanical transport were assembled.

The Force reorganised

After the above reorganisation the composition of the field force of the E.E.F. became as follows: Desert Mounted Corps (Anzac, Australian, and Yeomanry Mounted Divisions, with three brigades in each); XX Corps (10th, 53rd, 60th, and 74th Infantry Divisions); XXI Corps (52nd, 54th, and 75th Infantry Divisions); the Imperial Camel Corps Brigade, 7th Mounted (Yeomanry) Brigade, Imperial Service Cavalry Brigade, and 20th (Indian) Infantry Brigade under G.H.Q., as "Army Troops." The total fighting strength was 100,189. Within the mounted divisions themselves considerable changes also took place. Each now consisted of three brigades. The Imperial Mounted Division—3rd and 4th Light Horse and 5th (British) Mounted Brigades[1]—became known as the Australian Mounted Division. The 22nd (British) Mounted

The "Australian Mounted Division"

[1] The formation of a "5th L.H. Bde." had been suggested by General Murray to Australia in June, 1917, in order to make the Australian Mounted Division wholly Australian; but owing to the failure of recruiting no action could be taken by the Defence Department at this time.

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Brigade left the Anzac Mounted Division, and, with the 6th and 8th, formed the Yeomanry Mounted Division. These three divisions constituted the Desert Mounted Corps. Lieutenant-Colonel G. P. Dixon, A.A.M.C., from the 1st Light Horse Field Ambulance, was appointed A.D.M.S., Australian Mounted Division. A few weeks later Lieutenant-Colonel D. G. Croll, A.A.M.C., from the 2nd Light Horse Field Ambulance, was appointed A.D.M.S., Anzac Mounted Division, replacing Colonel R. M. Downes, A.A.M.C., who became D.D.M.S., Desert Mounted Corps.

A sanitary section was required for the Australian Mounted Division, and this was formed, as No. 8, by taking from No. 7 Sanitary Section and other medical units N.C.O's who trained rank and file from general reinforcements from the Training Dépôt. To its command, owing to the shortage of medical officers, there was appointed, with the rank of lieutenant, a warrant officer of the 3rd Light Horse Field Ambulance who in civil life was an architect. This departure from Australian (though not from British) establishments and practice—which decreed a medical commander for these units—proved a successful experiment.

The Camel Field Ambulance

On 20th June there arrived from Australia the rank and file for the new and unique medical unit, the Australian Camel Field Ambulance.[2] Officers and non-commissioned officers were appointed in Egypt, the former being selected from medical units or reinforcements, the latter promoted from the light horse field ambulances. The composition of this unit was specially designed to meet the conditions of its service: in particular every man, with the exception of drivers, was mounted on a riding-camel, and all equipment was carried on baggage-camels. The unit replaced the Scottish Horse Mounted Field Ambulance of the Imperial Camel Corps Brigade. Effect was also given to the already accepted principle of improving the mobility of mounted field ambulances, the personnel of one of the

[2] The Australian Government had been approached direct by the Egyptian Command, through A.I.F. Headquarters in Egypt, to provide the personnel for this unit.

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immobile tent sub-divisions being mounted on camels, and that of the other on donkeys. The addition of twelve horses to the transport of each sanitary section increased its mobility and enabled that number of personnel to accompany its division in any advance.

Certain changes in transport were made to meet the altered nature of the soil. The sledges unfortunately cut the ground signal-lines, and their use was prohibited. Motor ambulance waggons, even of light pattern, were found too heavy for regular use and were reserved for special circumstances. Sandcarts remained the stand-by for wounded, though camel cacolets were retained. For a time Egyptian natives replaced a proportion of the drivers.

Interval of preparation

The period that followed the two failures against Gaza (April to November, 1917), though one of comparative inactivity, was of great importance to the course of the campaign. For the first few weeks the troops were engaged in digging and wiring to make the line secure against enemy attack, which appeared not unlikely. When this was achieved, preparations were begun and pursued with steadily increasing vigour for a further attempt to drive the Turks out of Gaza. The country which at first, clothed in green crops and grass brightened by frequent patches of wild flowers, afforded an easy passage for wheeled transport, soon became a colourless brown area of powdery soil. Into this the vehicles quickly cut deep tracks, while they raised clouds of a fine dust which was a source of great discomfort. So light was the dust that the mild breezes that blew daily kept any area occupied by troops in an almost continuous fog, which penetrated and covered everything. To increase the discomfort, the weather became much hotter.

Heavy toils and lowered vitality

The effect of these two physical conditions on the Anzac troops, who had borne the hardships of the previous summer in the Sinai Desert and were now working with little respite, was a considerable lowering of their vitality. The conditions under which they lived were dreary and dull; the digging and wiring that began this period were strenuous; the frequent

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88. ADVANCED DRESSING STATION OF A LIGHT HORSE FIELD AMBULANCE IN THE SINAI DESERT, 1916

Aust. War Memorial Official Photo. No. B1639.

89. A RAPID TRANSIT ONE-HORSE AMBULANCE WAGGON

Taken by Sgt. C. L. Barrett, Aust. Camel Fld. Amb.
Aust. War Memorial Collection No. H14067.

To face p. 630.

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90. Bearers of the Australian Camel Field Ambulance at Abbassia, 1917

Lent by S/Sgt. R. Broomhall, No. 14 A.G.H.
Aust. War Memorial Collection No. B2453.

91. Camel cacolets of a light horse field ambulance outside Es Salt, April 1918

Aust. War Memorial Official Photo. No. B72.

To face p. 631.

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reconnaissances that followed, though less dull, were exhausting, while the days of so-called "rest" in bivouac were occupied in watering the horses, a task which often involved a ride of several miles two or three times a day, in grooming, in patrols, and in numerous fatigues carried out in a continuous atmosphere of dust. Leave was rare, facilities for recreation few, and at first the future contained little to invite anticipation.

Apart from the reconnaissances and the unpleasant excitement of some severe bombings,[3] the life of the medical units, though monotonous, was exacting. The work of an ambulance goes on whether active operations are proceeding or not. The corps front was held by one division, with another in "reserve" and the third in "rest." Though there was little fighting, reconnaissances and demonstrations against the enemy were frequent in the vast No-Man's Land that intervened between the right of the line, here drawn back along the Wady Ghuzze to El Gamli, and the enemy's left covering Beersheba. For these operations, full preparations were always necessary, since a reconnaissance might involve serious fighting. When the mobile sections moved out with their regiments, sufficient motor ambulance waggons were sent up to the forward immobile section stationed at the Shellal railway junction, in readiness to be sent out to the mobile sections if required. From Shellal the ambulance train travelled daily to the casualty clearing station at Rafa.

Preparation for new offensive

Into all this routine there gradually crept a note of preparation for greater events. In the medical service it became necessary to take stock not only of the details but of the whole system in the mounted divisions for the evacuation of wounded. There was no precedent or experience, save that of the campaign itself, to serve as a guide to the most efficient method of employment of the medical units of a cavalry

[3] After the Second Battle of Gaza the immobile sections of the five field ambulances returned to Deir el Belah and camped in the vicinity of the casualty clearing stations. At 10 p.m. on May 5 enemy aircraft, flying low in brilliant moonlight, heavily bombed the medical units. In the casualty clearing stations the casualties were in the region of 100: in the 3rd L.H. Fld. Amb. 6 were killed and 9 wounded; in the 2nd one patient was killed and 4 orderlies wounded. The bombs were followed by machine-gunning. The medical units were marked with Red Cross ground sheets, and their position was unimpeachable. The bombing was repeated on the following night, causing 13 casualties.

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corps in action.[4] In the early long-distance desert operations camel convoys had been provided from the infantry divisions, and the wounded had been handed over to infantry field ambulances, casualty clearing stations being non-existent even as far forward as railhead. In the First Battle of Gaza the medical arrangements for the two mounted divisions concerned were independent and lacked either camel or motor ambulance convoy. In the Second Battle of Gaza the evacuation from the two divisions was for the first time co-ordinated by the provision of a motor ambulance convoy, under control of the D.D.M.S., for evacuation from field ambulances to casualty clearing station

For the future the prospect was changed. There were now three divisions, and it was certain that, under a cavalry officer as commander-in-chief, the Desert Mounted Corps would take up its proper rôle —which in the past it had not always filled— and be used as cavalry. Indeed, preliminary orders for the coming offensive made it apparent that the corps must be prepared at times to rely for some days on its own medical service, supplemented—as the D.D.M.S. was informed by the D.M.S., E.E.F.—by the addition of a single section of a heavy motor ambulance convoy (eighteen cars) from the one convoy[5] available for the three corps which constituted the field force. Satisfactory evacuation under such circumstances would evidently involve an additional system of units in echelon behind the normal divisional medical stations,[6] so that cases could be relayed back from the front line to some point from which evacuation to the casualty clearing stations could be carried out. A solution of the problem presented itself in the "divisional receiving stations," which at this time were actually working in echelon at Shellal Junction

New medical tactics required

[4] The teaching of the textbooks before this campaign provided two plans for the collection of wounded in mounted warfare, one with detached cavalry formations or in operations involving dispersion, another in operations involving concentration. In the former, light horse ambulance waggons were to be attached to regiments, and, under the orders of the regimental medical officer, were to bring back wounded to the collecting post formed by field ambulances; in the latter it was laid down that ambulance waggons would not usually be distributed to regiments, but that field ambulances would move up to positions where wounded had been collected by the regimental personnel.

[5] No. 35 Motor Ambulance Convoy (50 cars) arrived from England at the end of March, 1917.

[6] The advanced dressing-station and divisional collecting station.

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(division in the line), El Fukhari (division in reserve), and Khan Yunus (division in rest). A scheme on these lines was devised and the necessary organisation to put it into practice effected. The working out of the scheme was again an effort of improvisation. At a conference of the D.D.M.S., Desert Mounted Corps, with the A.D'sM.S. of the three divisions and the commanding officer of the Camel Field Ambulance it was decided that the three immobile sections of the field ambulances of each division should amalgamate to form a divisional receiving station, and that these combined divisional receiving stations would act in echelon for the corps. Their administration would, it was evident, necessitate direct control and co-ordination by the D.D.M.S. of the corps. Though such an arrangement naturally met with some opposition from the A.D'sM.S. of divisions, who objected to losing part of their command, it was a necessary one, and no reason was afterwards found for altering it. After some debate it was agreed that divisional collecting stations would, when required, be formed from tent division personnel of the mobile sections.

Combined divl. receiving station organised

The receiving station was thus made the pivot of evacuation for the corps instead of the casualty clearing station. A specially selected officer was placed in command of each divisional receiving station, and was charged with the difficult task of organising into a working machine the somewhat unwieldy unit, which carried an excess of senior non-commissioned officers and an insufficiency of transport. In the past the immobile sections had been transported by railway train or borrowed transport: under the new arrangement they must in future depend on the transport of the ambulances of which they formed part. The transport of each mounted ambulance for stores and equipment, baggage, and one day's rations for men and animals, consisted of two general service waggons, two limbered waggons, and the Maltese cart. The two general service waggons were allocated to each immobile section (that is six to each divisional receiving station), and a scale of equipment was drawn up that would come within their capacity of 1,600 lb. each. Though this had to be cut down to

Its role and composition

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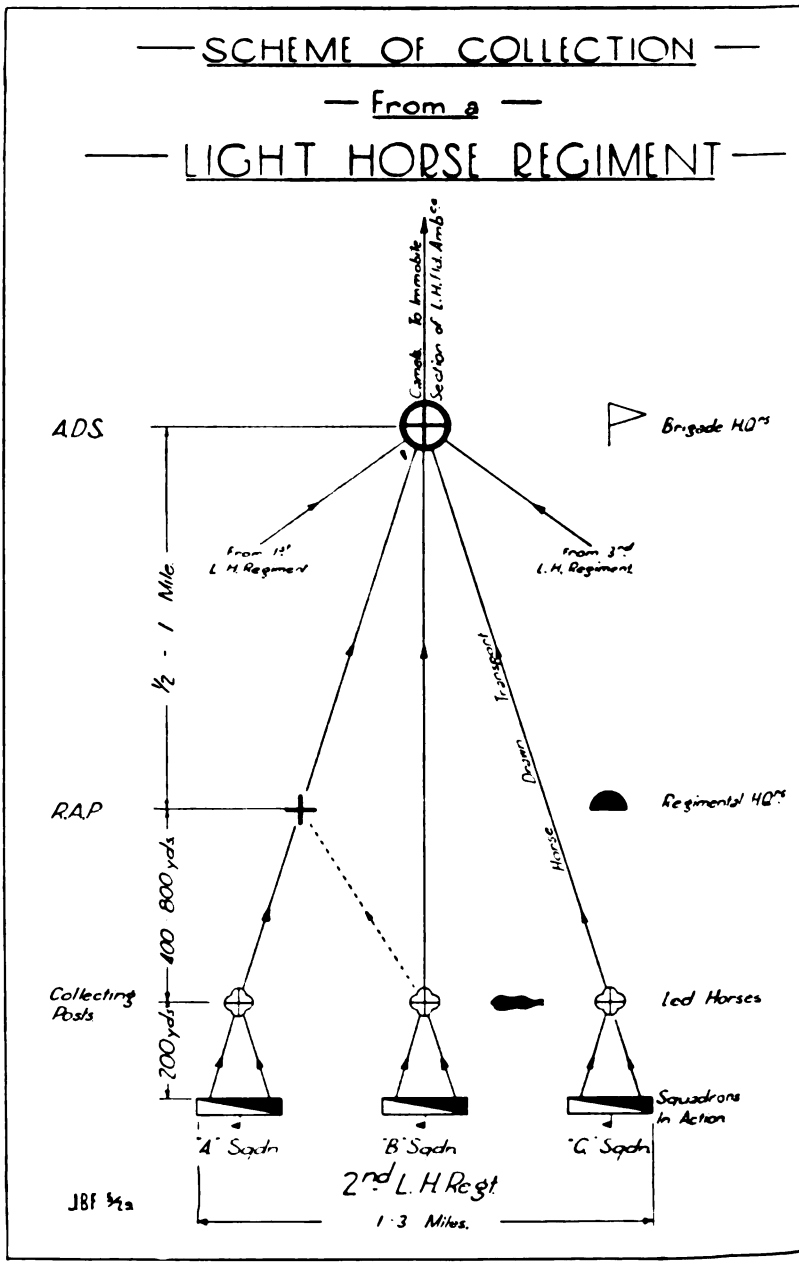
Diagram No. 7



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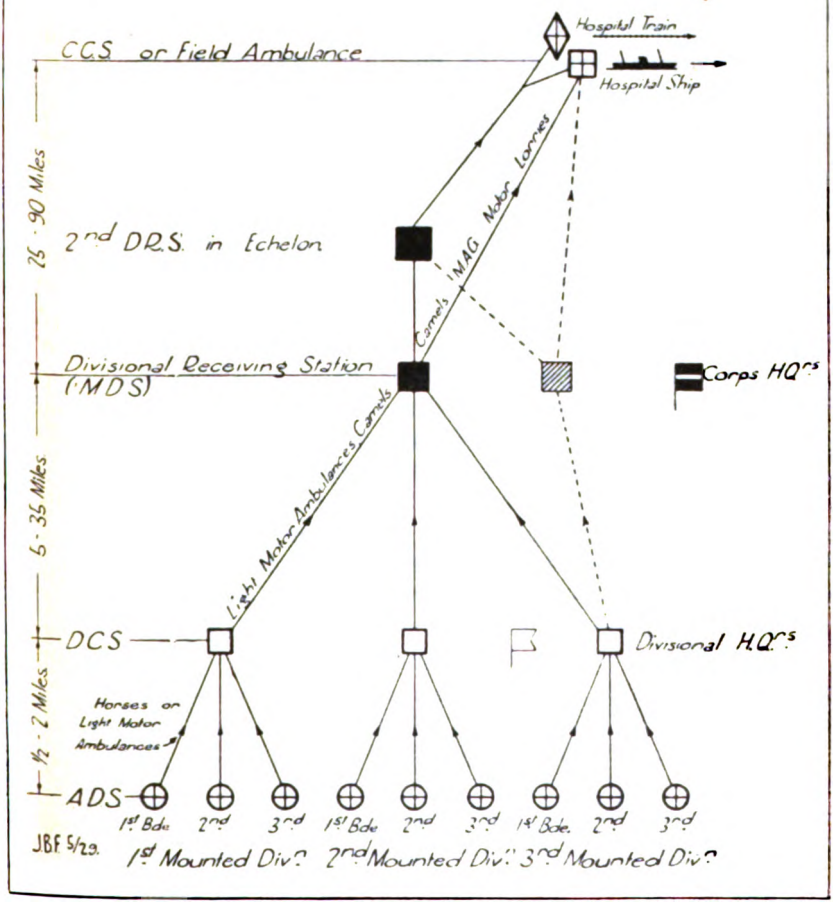
— SCHEME OF EVACUATION —
— From the Advanced Dressing Stations —
— of —
— LIGHT HORSE FIELD AMBULANCES —
— In the —
— DESERT MOUNTED CORPS —



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the absolute minimum, it included tents, blankets, groundsheets, medical and surgical stores, stretchers, firewood, lamps, and medical comforts. The total strength of a combined "receiving station" was six officers and ninety-nine other ranks, all of whom, except officers, marched on foot.

Operating unit

Another unit which proved of immense value to the medical services of the mounted formations was attached to the Desert Mounted Corps at this time. It was an operating unit. In moving warfare the distance from the casualty clearing stations made early operation impossible. Even in the stationary warfare of this period, at least twenty-four hours and a terrible journey must intervene between the sustaining of an abdominal wound, for example, and facilities for surgical operation. The developments in this connection which were so important a feature in the surgical evolution on the French front were slow in reaching Palestine.[7] To meet the requirements, immediate and prospective, in this direction, and particularly in view of the comparative immobility of the casualty clearing stations and their usual remoteness from the operations of the mounted troops, an operating centre was improvised not long after the Gaza operations in the Anzac Mounted Division. A tent was provided in the divisional receiving station at Shellal; surgical instruments and other equipment were obtained through the Australian Red Cross; orderlies were specially trained in operating theatre work; and ambulance officers who were surgeons in civil life were allotted for duty when required.[8] In August, when the Desert Mounted Corps was formed, a special unit, the "Desert Mounted Corps Operating Unit," was established and replaced the improvised divisional establishment. To it was attached the motor operating car belonging to the Scottish Horse Field Ambulance which, designed by Colonel H. Wade in 1914, was used in Gallipoli

[7] British consulting surgeons were attached specially to the casualty clearing station at Khan Yunus for the First Battle of Gaza in March, 1917, and at Deir el Belah for the Second Battle of Gaza. "Operating units" were not, however, made independent by a special establishment of personnel and equipment. *See* I'd II.

[8] Soon after the operating centre became ready for work, two troopers sustained abdominal wounds and were successfully operated on within four hours of wounding.

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at Suvla, in the Libyan Desert, and at Kantara.[9] An Australian surgeon was brought from Cairo and placed in command, and orderlies were drawn from each of the three divisions and trained for surgical work. Included in the equipment of the car was wire netting to be put under the wheels in sandy country, together with rope and axes for getting out of difficulties. Trial runs with the operating car proved that, with care, it could cross the Wady Ghuzze. Extra transport required to carry the tentage, surgical equipment, and personnel was obtained fortuitously.

Anzac Field Laboratory

Another medical unit that appeared in the corps at this time was the improvised Anzac Field Laboratory, already mentioned in connection with the cholera outbreak at Romani. For some months this unit had been employed in exacting routine work at different railheads under the orders of the D.D.M.S., Desert Column. In June, 1917, it was attached to the Anzac Mounted Division, enlarged both in equipment and personnel, and organised to permit of division into a heavy section, stationed with the cholera hospital at El Fukhari, and a light section which could be more easily moved, attached to the divisional receiving station at Shellal Junction. In October, 1917, authority was given for the full establishment of a Mobile Field Laboratory.[10]

Health good

In spite of the general lowering of vitality already referred to, the general health of the mounted troops during this period of stationary warfare on the borders of Palestine was appreciably better than it had been during the more strenuous period of the Sinai campaign. Food and feeding, rest, and facilities for the prevention of transmissible diseases were under more

[9] This car was built on a Wolseley chassis and contained operating table, sterilisers, a full kit of instruments and other surgical equipment, and electric lighting. It was designed for operations to be performed inside it, but the space was found too small and the heat too great to allow of this. Its equipment, however, was invaluable.

[10] During 1916 investigation and diagnosis of infectious diseases were undertaken by improvised laboratories, their staffs being assisted by the Egyptian Public Health Department. In Feb., 1917, six military laboratories were formed in Egypt and distributed along the lines of communication. These were supplied with special bacteriological equipment and trained personnel from the Military Bacteriological Laboratory (formerly the Central Bacteriological Laboratory) then stationed at Kantara.

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control than had been possible in the desert. The figures shown in the table given below may be compared with those of the earlier and later stages of the campaign. It is also of much interest to compare them with those of Gallipoli.

1917.	ANZAC MOUNTED DIVISION.		AUSTRALIAN MOUNTED DIVISION.	
	Average weekly sick rate %.		Average weekly sick rate %.	
	Adm. to Fld. Ambs.	Evac. from Fld. Ambs.	Adm. to Fld. Ambs.	Evac. from Fld. Ambs.
January ..	1.33	.89		
February ..	1.09	.71		
March ..	.78	.62		
April ..	1.99	1.70		
May ..	1.79	1.53	2.58	1.69
June ..	1.69	.98	2.54	1.08
July ..	1.71	1.51	2.93	1.54
August ..	1.31	1.30	1.69	1.14
September ..	1.18	.96	1.23	.80
October ..	.98	.84	1.13	.69

The influence of climate and season is shown by the fact that for the first three months of 1917 the highest rate of admissions to field ambulance in the mounted divisions was 1.4 per cent of the troops per week, and the lowest .6 per cent.

While thus in itself as uneventful in respect of health as of warlike happenings, this period is of interest as preluding developments that were to become of great importance. Though very successful, the prevention of infectious disease required constant efforts on the part of the medical service. Indeed, to the sanitary sections this period of reorganisation and development was a very important one. During the Sinai campaign and the first halt on the border of Palestine, No. 7 Australian (the Anzac) Sanitary Section had made medical history by working out both the proper place of a sanitary section in a mounted division and also the most effective equipment and methods whereby the various sanitary measures might be made possible in this most difficult military formation. The position of this new technical medical unit in a mounted division had been assured, and during 1917 the

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experience of the past twelve months of movement was translated into purposeful, sustained, and effective intervention in the life of the regiments.[11]

[11] The following extracts from notes by the commanding officer of an Australian sanitary section illuminate the evolution of sanitary discipline and of sanitary methods in the Australian light horse formations:—

"The first difficulty was that the Anzac Mounted Division, being a mobile unit, was not provided with a 'park'; although we had engineers, they did not assemble material and form a park, as in an infantry division, but used to indent on the Field Company R.E. of the nearest division. This looked all right on paper, but in practice was often very unsatisfactory, since in a shortage of supplies the light horse sanitary sections fared badly, with the result that often we could get material only by threatening to pinch it. In this Sinai campaign everything had to be returned that could possibly be used again (biscuit tins, sacking, and so forth). With virtually nothing but sand and 'camel weed' and some burnt tins, the chance of improvising was badly hampered; there were the bands of iron used for the compressed hay or tibbin: these we wove into basket incinerators, which were very effective. There was not a stone, no earth; hence sandbags were essential for everything that required pits. After experiments, we showed the regiments how to reduce the number of sandbags required to build a safe deep-pit latrine from 500 to 120, and later got wood from Egypt and built the sides of wood in the form of a box, with top and bottom knocked out, pushed into the sand by hammering the ends while a man inside shovelled out the sand beneath. This reduced the cost per regiment from about £80 to £6 or £7.

We found at first the regiments sick to death with 'strafes' for lacking sanitary appliances which they could not get hold of. Realising their difficulty, we found out what the requirements were in actual material, and obtained it for them, they providing transport and working parties to install appliances. A sanitary inspector would attend to give expert advice on how to build latrine pits, incinerators, grease-traps, etc., with the result that regiments that were willing were soon in proper condition, and those who were lazy or incorrigible could be 'strafed' the more vigorously and with the general approval of the division.

What made matters worse for the light horse was the fact that the Anzac Mounted Division during the desert warfare acted as the spear-point of the expeditionary force; that is to say, they would spread out as a fringe in contact with the enemy, at times 20, 30, or 40 miles ahead of the main infantry units. In other words, whenever a new camp was to be established, the mounted division had to move out and establish a camp there, the infantry following on behind and taking over their old camp site plus its equipment. For the regiments, or even brigades, or even, one might say, the (mounted) divisions to attempt to carry out sanitary work was impracticable, their requisitions simply falling by the wayside. In the desert sandbags and, later, boxes were used for the pit latrines, burnt tins, and old sacking, old biscuit-tins, etc., for urine pits; boxes, biscuit-tins, and hessian for grease-traps; and incinerators were chiefly of two kinds, the basket made from tibbin bands, and the V incinerator, two perforated pieces of galvanised iron set up on two cross pieces of iron—really iron standards used in barbed-wire entanglements. The Lelean incinerator, made of galvanised iron which folded up, was quite useful for smaller units.

The battle of Rafa was very soon followed by an advance to a line, which included Weli Sheikh Nuran, on the Wady Ghuzze, when we got into earth country, and pits could readily be dug and stones were occasionally available. A large variety of equipment was then used, some of the old favourites being retained. Occasionally a big earth incinerator would be dug, as in France. By this time, too, the old five-seater latrine and pit had given way to the portable buckets with flyproof automatic tops, pivot-hinged, which were universally used, all wastes, human or otherwise, being incinerated.

We were keen to carry things whenever we could. First of all equipment had to be got out to units five miles or more, through heavy sand, from the railheads. Then some of the things like incinerators, latrine buckets, and seats could be made portable, and, where we could take things on with us, of course we did. In some cases outlying camps made by the Anzacs were so far on the flank that either the equipment would have to be abandoned or carried on. The camp would not be occupied again by infantry. As the phrase went: 'Three moves are as good as a fire,' and so the portable equipment, to be of use at all, had to stand the wear and tear of transport."

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As usual after heavy fighting, sanitation after the Second Battle of Gaza was very lax and required to be tightened up; in particular there was amply demonstrated the need of means of transport for portable sanitary material in the regiments, to be available immediately after an advance. The situation in this respect improved as time went on, and this was without doubt an important factor in the prevention of disease among the increasing number of troops in the forward area. It especially promoted the incineration of all organic refuse (including fæces), a system which, after the initial difficulties had been overcome by experiment, was carried out, except for brief periods of rapid movement, throughout the rest of the campaign.

Gastro-intestinal infections

Gastro-intestinal infections were inconspicuous during this period. Out of 144 deaths in the E.E.F. from dysentery during 1917 (1 in 1,429), 3 were from the Anzac Mounted Division (1 in 6,333).

Naso-pharyngeal and inspiratory

Sporadic cases of diphtheria continued to occur; otherwise diseases of this type were negligible.

With the exception of a few cases contracted at Kantara, malaria had been almost non-existent in the field force.

Specific insect-borne diseases —malaria

Sporadic cases now occurred, and the conditions encountered brought home the fact that, with an advance into Palestine, intensely malarial country would be entered. The Wady Ghuzze, in summer for the most part a chain of pools, offered ideal conditions for the breeding of anopheles mosquitoes. Under the guidance of Major E. E. Austin a vast amount of labour was expended on anti-mosquito measures by the division in the forward area, and this was of the utmost value as a preparation for the more important problems which arose later in this connection. Few medical officers had had previous personal experience in malaria. To remedy this deficiency, an officer was appointed in each division to give instruction on the different clinical forms

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of this disease and the means to correct diagnosis and treatment.[12]

Local septic infections—"Barcoo"

Septic sores—or "Barcoo" as they were commonly called by the Australian troops[13]—which had been so prevalent in Gallipoli and had reappeared to some extent in 1916, again became prevalent in the summer of 1917, and affected a considerable proportion of the mounted troops. The exact incidence is uncertain: a census taken in the Anzac Mounted Division in July showed twenty-two per cent affected, the proportion being markedly greater among men with over six months' service. The incidence of the disease was still greater in the following month. The condition —which occurred most frequently on the hands—was characterised by superficial ulceration affecting the epidermis, and followed commonly on some slight injury. The sores were painful and very resistent to treatment. The pathology of the condition was investigated at No. 3 Australian General Hospital in 1916 by Lieutenant-Colonel Martin, and was ascribed by him to a septic infection of low virulence in the hair folicles; and he obtained rapid cures by epilation of the ulcer and surrounding skin and by subsequent use of anti-septics. This treatment was, however, hardly practicable in the field. In June of 1917 Lieutenant-Colonel C. B. Blackburn investigated the condition within the Anzac Mounted Division, his opinion being that food deficiencies were primarily responsible—a view which subsequent experience appeared to validate.[14]

General war debility

In addition to the debility among the troops due to the specific cause noted above it was becoming increasingly evident that the health of the original members of the regiments had been detrimentally affected by the conditions of the campaign.

[12] A development of great importance in the promotion of scientific morale and keenness was the formation of the Desert Mounted Corps Medical Society, at which lectures were given by officers who had had special experience in various directions. Besides those on malaria, lectures and discussions were held on bilharziasis; surgery in the front line; expedient surgery in the field; duties of an R.M.O.; and water control.

[13] From a tract of country in the interior of Australia where (it is of interest to note) the conditions of climate and communication make fresh fruit and vegetables a rarity.

[14] The condition rapidly disappeared at the end of 1917 after the troops had entered the Jaffa Ramleh region, where the supply of oranges was unlimited.

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Physicians at No. 14 Australian General Hospital were able to distinguish the men who had left Australia with their regiments from the more recent reinforcements by their general enfeeblement and slow reaction to treatment. This fact was reported to General Chauvel, G.O.C., A.I.F. in Egypt, with a strong recommendation as to the necessity for rest and leave. It was fortunately possible at this time to take action which proved very effective. Geographical position and shortage of transport prevented anything in the way of leave out of the country; but local measures were taken which, though apparently trifling, proved of great benefit to health. The most valuable of these was the establishment of "rest camps" on the sea beach, one for each division being opened at Tel el Marakeb, on the cliffs just to the north of Khan Yunus, and staffed by an immobile section of an ambulance. These camps catered for those men who, while still able to carry on their duties, were considered to be run down and likely to benefit by a change. The conditions under which they here lived were made as different as possible from their life in the regiments: there were no parades, and their only duty was to keep their beds tidy. Stretchers were provided, but the majority preferred to lie on the sand. Long wards, which were airy and cool, were made by lashing "E.P.I.P." tents together. As much as possible was done to supplement the ordinary rations, and a piano, library, and numerous games, as well as a barber, were provided by the Australian Branch of the Red Cross Society. The band of the New Zealand Mounted Rifles Brigade frequently played to them. These rest camps provided one of the greatest opportunities that fell to the Australian Red Cross Society, and the value of its efforts was great. Everything that was possible was done by its commissioners. Most of the day-time was spent by the patients in bathing and sleeping. It was found that a period of a fortnight of "loafing" with nothing to worry them and a greater variety of diet was much appreciated by the men and effected a notable improvement in their health. The camps remained in use until the offensive was resumed at the end of October,

Rest camps established

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1917. In addition there was an Army Rest Camp at El Arish, of which, however, little use was made by the Anzac troops.

In July, 1917, a more ambitious rest camp was formed at Port Said and administered by A.I.F. Headquarters for all troops of the Desert Mounted Corps. It served as a place to which men could be sent on leave from the regiments. It was not in any way for men who were ill, and was not administered by the medical services, though some medical personnel were attached to the staff to treat minor ailments and to supervise sanitation. Tents were utilised for accommodation, with matting huts for mess and recreation rooms. Much help was given by the Australian Comforts Fund and Y.M.C.A., and a number of Australian ladies did a great deal for the recreation of the men. On August 1st the first batch of 700 men arrived. By November, 1917, 221 officers and 8,462 other ranks had passed through this rest camp, making a weekly average of 510.

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CHAPTER VII

BASE ORGANISATION AND ADMINISTRATION

THE internal affairs of the Australian medical service in Palestine were administered by an Australian officer with powers delegated from the Director of Medical Services, A.I.F. In connection with this administration there arose at first misunderstandings with the Imperial authorities similar, in a small scale, to those which preceded the recognition of the autonomy of the A.A.M.C. They were as smoothly and satisfactorily settled. More serious was an estrangement between the Australian Director in London and his own representative in Egypt. The misunderstanding in this case was due, in the first place to an unfortunate lack of definition in the arrangements made for maintaining central control; and in the second to defective appreciation in London of the conditions at the Eastern seat of war, where not only the needs of the light horse in the field, but the problems at the base, in connection with treatment, convalescence, invaliding, and return to duty, called for understanding and sympathetic assistance from higher medical authority representing the Australian Commonwealth.

* * *

The narrative of events at the fighting front here finds a natural check in the strategic halt between the two major phases of the campaign. Advantage may be taken of this pause to examine the situation that developed, during the period hitherto treated, in regard to the interior administration of the Australian Army Medical Corps serving with the Australian force in Egypt; to follow the work of the Australian medical units and administrative departments on the lines of communication and at the base; and in general to review the progression of the sick and wounded of the Australian light horse through the medical organisation at that point. As part also of the purpose of this history, it is opportune here to follow in this eastern theatre of war the evolution of the military *modus vivendi* between Great Britain

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and Australia, which, while it postulated the complete absorption of the Australian force in the British Army for service, at the same time permitted a high degree of autonomy in its internal affairs. This problem, already far from simple, was in Egypt greatly confused by the fact that the relations between the Australian force in Egypt and the headquarters of the A.I.F. in Europe were even less defined than those between British and Australian administrations.

Internal control of A.I.F. in Egypt

Upon General Birdwood's departure with the I Anzac Corps, the powers vested in him by the Australian Government as G.O.C., A.I.F., were delegated by him, in respect of the troops remaining in Egypt, to Lieutenant-General Sir A. J. Godley, who, on the departure of the II Anzac Corps on June 6th, re-delegated to Major-General Chauvel. This officer now assumed responsibility for the administration of all A.I.F. troops in Egypt, in addition to that of his divisional command, subject to the provision made by Birdwood that all decisions affecting interior economy, including posting and promotion, must be referred for final approval to him as G.O.C., A.I.F.

Clearing up after Gallipoli

On the departure of the Australian Administrative Headquarters for London, there was left in Cairo an Egyptian Section, which was re-organised into its original sub-sections. Its medical sub-section was confronted with two distinct sets of problems; first, those which concerned the force still remaining in Egypt, and second those (which were at first by far the greater) concerning the disposal of invalids from the Gallipoli campaign and, *pari passu*, the closing of the auxiliary and convalescent hospitals and the despatch of the Australian general and stationary hospitals to Europe as they were released. The administration of this sub-section was placed in the hands of an officer of the staff of the D.M.S., A.I.F., with the title of A.D.M.S., A.I.F., who communicated direct with, and reported weekly to, the office in London. Surgeon-General Howse had intended and expected "to withdraw all the Australian lines of communication and base medical units from Egypt" and presumed "that the Imperial hospitals should provide for the necessary medical attention

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of the troops of the Anzac Mounted Division."[1] At the end of May, 1916, there remained in hospitals in and around Cairo some 5,000 Australian sick and wounded, of whom 1,500 awaited transport for return to Australia. The flow from the Sinai front was at this time insignificant, and was now chiefly to Port Said. Under pressure from the D.M.S., A.I.F., clearance proceeded apace, and the departure of the II Anzac Corps in June left the derelicts only to be dealt with. On July 21st only 1,238 remained in hospital, but the repeated requests of the D.M.S., A.I.F. (Surgeon-General Howse) for the release of the Australian hospitals[2] could not be met by the D.M.S., E.E.F. (Surgeon-General Maher), who declined to sanction their departure unless they were replaced. At this juncture, under circumstances elsewhere described,[3] Australia offered a new single general hospital of 520 beds (No. 14 Australian General). In this unit was found a key to the problem. With the consent of the Australian Government it was arranged that it should be diverted to Egypt and thus set free No. 3 Australian General Hospital (1,040 beds) for service in England. During August No. 1 Australian Stationary Hospital left for England, No. 2 being reserved for the Australian mounted troops and moved to Port Said; the staff of the auxiliary hospitals and convalescent dépôt, Ras el Tin, embarked for England; the Dermatological Hospital was relieved by the formation of a venereal section at No. 3 General, and the A.D.M.S., A.I.F., was advised that "as soon as it is thought Australian medical work in Egypt no longer requires an Australian A.D.M.S. the D.M.S. (A.I.F.) will arrange (his) transfer." In September No. 14 Australian General arrived, and, shortly before, the A.D.M.S., A.I.F., left for England, the order for his departure emanating, however, not from the D.M.S., A.I.F., but from the "G.O.C. administering A.I.F. in Egypt,"[4] who disapproved

14th A.G.H. for Egypt

[1] It was thought at this time that the Australian mounted troops as well as the infantry would ultimately go to France.

[2] Urgently required to meet the tremendous demands of the Somme offensive, and pressed on these grounds through the Director-General of Army Medical Services. *See Vol. II.*

[3] *Vol. II.*

[4] Confirmation from Australia in Aug., 1917, of Gen. Godley's delegation to Gen. Chauvel took the form of the appointment of the "G.O.C. Anzac Mounted Division" as the officer charged with the "administration of all Australian troops in Egypt."

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of certain actions taken by this officer without his cognisance. The episode coincided with the assumption by General Chauvel of full control of the Australian base in Egypt in addition to his command of the Anzac Mounted Division. On his instructions Colonel Downes, A.A.M.C. (then A.D.M.S. of the Anzac Mounted Division), took up the duties of the A.D.M.S., A.I.F., in addition to those of A.D.M.S. of the division. In advising the D.M.S., A.I.F., of his appointment as "acting A.D.M.S., A.I.F. in Egypt," Colonel Downes "anticipated" that for the time "all matters may be arranged from Romani by letter or telegram." He found practically no instructions defining his relations to the D.M.S., A.I.F., and to this fact must in large measure be ascribed certain subsequent misunderstandings. The one definite instruction was that no requests or reports should be sent to Australia direct, except by the desire of the Imperial authorities or of the Australian Defence Department itself. It was indeed at this time assumed that, as part of the A.A.M.C., A.I.F., the A.A.M.C. in Egypt could be effectively administered by the D.M.S., A.I.F., in London. In November of this year, on the recommendation of the D.M.S., A.I.F., a D.A.D.M.S., A.I.F. in Egypt, was appointed to assist Colonel Downes in these special duties. In April, 1917, on his appointment to command the Desert Column, General Chauvel was given the personal appointment of "General Officer administering A.I.F. in Egypt," an A.A.G., A.I.F., being appointed to form an A.I.F. headquarters (Egyptian Section) in the field. On his transfer to the Desert Mounted Corps in August, 1917, Colonel Downes retained his appointment as "A.D.M.S., A.I.F."

An "A.D.M.S., A.I.F." for Egypt

Though routine medical administration could be carried out by the D.A.D.M.S., the circumstances of the A.I.F. in Egypt brought special problems in Base administration which in their way were no less difficult, and more confusing, than those involved in the tactical employment of the medical service in the field. These necessitated repeated and at times prolonged visits by the A.D.M.S., A.I.F., to A.I.F.

Difficulties of distance and divided command

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Headquarters in Cairo. By reason of the unique administrative position of the Australian force, the A.A.M.C. in Egypt was the concern of two directors of medical services—the D.M.S., E.E.F., in respect of service and efficiency, and the D.M.S., A.I.F., in matters of interior economy. The A.D.M.S., A.I.F. in Egypt, sometimes found himself involved in a conflict of interests and occasionally at variance with both of his official chiefs. Most of the difficulties were, however, caused by the problem of giving practical effect to the idea of unified control of the A.A.M.C., A.I.F., by the Australian Director in London. The chief factor in these were distance and the German submarines, with the accessory one that the two sections of the A.I.F. were of different arms—infantry in the west, light horse in the east. On the other hand it must be said that differences between the A.D.M.S., A.I.F. (and through him the G.O.C. administering A.I.F. in Egypt), and his administrative chief, the D.M.S., A.I.F. in London (with the G.O.C., A.I.F., behind him), were in some instances concerned with important matters of medical policy in which, in the interests of the service, the views of the D.M.S. had to prevail. Moreover the circumstances of the initial relations between the D.M.S., A.I.F., and the new A.D.M.S., A.I.F. in Egypt, were unpropitious. But though the administrative differences (resulting in a considerable severance between these two administrations) may in some measure have been due to personal factors and a consequent lack of accord, they also illustrate, and forcibly, the difficulties entailed by centralised administration.

The D.M.S., A.I.F., and the light horse

While space does not permit of giving point to these general statements by a narration of the occurrences on which they are based, it is desirable to give some indication, by particular instance, of the nature of the administrative problems that caused most difficulty. Reports were rendered fortnightly to Surgeon-General Howse under the signature of the A.D.M.S., A.I.F. in Egypt, or of his deputy, concerning the general problems connected with Australian sick and wounded in Egypt, and concerning events of the campaign, particularly with regard

An illustration

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to the situation in respect of medical, nursing, and dental personnel and units. These reports were sent direct to Australian Administrative Headquarters in London[5] and at first were acknowledged with appropriate comment: but after a time these acknowledgments ceased, and the two administrations gradually drifted apart. One of the first questions on which disagreement arose illustrates the general administrative situation in Egypt. On the 15th of January, 1917, the D.M.S., E.E.F., on his own initiative and without the knowledge of Australian administration in Egypt, represented to the War Office that the establishment of No. 14 Australian General Hospital, in which all Australian sick and wounded evacuated to the base were received, was insufficient for the number of cases it was required to treat, and asked that its establishment should be increased. On the matter being referred by the War Office to the D.M.S., A.I.F., the latter refused to sanction the increase, as he considered that "the additional personnel required to effect this are more urgently needed in France and this country than in Egypt."[6] As a matter of fact, the request had been made in view of the expected battle on the Palestine front (the attacks on Gaza). Being unaware of this refusal, the Australian administration in Egypt, on being approached by the D.M.S., E.E.F., readily acceded to his desire that a

[5] In Sept., 1916, the D.M.S., E.E.F., who had hitherto been unaware that such reports were sent direct to the D.M.S., A.I.F., instructed that they should be sent through himself, since they dealt with matters which concerned his administration and emanated from an officer who was his own subordinate; and in Feb., 1917, learning that no other Australian services rendered similar reports, he decided that they should be discontinued. On its being pointed out by the A.D.M.S., A.I.F., that promotion of A.A.M.C. officers was made from the Australian Army Medical Corps as a whole, that reinforcements in medical officers and nurses were sent from Australia to Egypt only on demand from headquarters in London, and that the information was therefore necessary, this decision was rescinded.

[6] The following is an extract from the communication which the D.M.S., E.E.F. (Surg.-Gen. Maher), sent to the War Office regarding the expansion of No. 14 A.G.H. to 1,040 beds:—

"This expansion is rendered necessary by the fact that, in addition to the treatment of sick of the Australian and New Zealand Division, the unit has to retain such men as have been invalided to Australia and are awaiting passage by the infrequent hospital ships plying to Australia and New Zealand. Often more than 300 such men are retained awaiting passage."

In reference to this the D.M.S., A.I.F., on Feb. 21, wrote to the War Office:—

"It is considered that the additional personnel required to effect this are more urgently required in France and in this country than in Egypt. I would suggest that a large portion of the Australian invalids who are awaiting return to Australia should not be retained in a General Hospital, but should be held in an Auxiliary Hospital or Convalescent Dépôt, and so free the beds of the General Hospital for more serious cases. This was the practice in force in dealing with Australian invalids in Egypt in 1915 and 1916, and is also now being carried out in England."

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request for increase of establishment should be made direct to the Australian Government. A.I.F. Headquarters, London, when informed of this action, immediately cancelled the demand, with an expression of displeasure that it had been made, though, having been made at the request of the Imperial authorities, technically it had not transgressed the order of the G.O.C., A.I.F. The matter was cleared up in June—as it should have been before—when a senior administrative officer from A.I.F. Headquarters, passing through Egypt on his way to Australia, inspected the hospital and reported to the D.M.S., A.I.F., that the increase in establishment was necessary. The required authority was promptly given. The impression was left that the A.A.M.C. in Egypt and its work were considered at A.I.F. Headquarters in London to be secondary to the A.A.M.C. in France, and that little sympathy or help in its difficulties could be expected.

Differences as to promotion

A further cause of debate concerned the promotion of officers. When the light horse became a separate formation, there appeared no reason why promotion within the Australian Army Medical Corps, and in the dental and nursing services, should not be made from single gradation lists. But, with the increase in the number of field medical units and staff appointments in Egypt, vacancies for senior appointments occurred at a considerably faster rate than in France, and consequently officers, if given substantive rank of their positions, would take precedence of their seniors in France. An exchange of officers would have obviated the difficulty, and in one or two instances this was carried out, but for many reasons it was not feasible as a general solution. It was ultimately arranged that officers in Egypt promoted to senior positions should hold them with temporary rank until such time as they should become due for substantive promotion in the A.A.M.C. A similar difficulty as regards substantive promotions (which at first were made by the D.M.S., A.I.F., without reference to the authorities in Egypt) was settled by a compromise whereby the D.M.S., A.I.F., made promotions in Egypt only after consideration of reports on their suitability, these being furnished periodically from Egypt.

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The granting by the G.O.C. administering the A.I.F. in Egypt—on the advice of his A.D.M.S.—of provisional commissioned rank and command of medical units to individuals other than medical officers occasioned a debate which had more important involvements. In one instance, on account of lack of suitable medical officers, command of No. 8 Sanitary Section was given to a warrant officer who was held to be, and indeed proved himself, well qualified for the position, though not holding a medical qualification. The other appointment concerned the command of the improvised "Anzac Field Laboratory," for which no establishment existed, and which, after the departure of Lieutenant-Colonel Martin, and a brief period of direction by a British officer, carried out its work under the very capable supervision of the warrant officer, a trained bacteriologist but not a medical man.

In each of these cases the commands were eventually confirmed by the G.O.C., A.I.F., the question of rank being solved by appointment as "Quartermaster and Honorary Lieutenant."[7] Ultimately a trained bacteriologist was sent from England for the mobile laboratory.

Differences with British authorities

With British medical administration in Egypt the questions that required mutual adjustment arose chiefly in connection with administrative positions in the field, with the movement of Australian base units, and with certain special features of the treatment and disposal of Australian sick and wounded. It was not questioned by the British administrators that matters affecting personnel, such as pay, posting to Australian units,[8] promotion, and the provision of reinforcements, were matters of purely Australian concern. But, while command of Australian medical units was always filled by Australians, a somewhat delicate position arose in regard to the important positions of Deputy, Assistant, and Deputy-Assistant Directors of medical formations in the field. In formations which were partly British and partly Australian, and whose composition was constantly changing, it was

[7] After sterling service the officer appointed to the Mobile Laboratory died of malaria contracted in the course of his duties.

[8] On one occasion only were the wishes of the A.D.M.S., A.I.F., in this matter disregarded.

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hardly possible to adjust the appointments so that administrative control always accorded with their composition at the moment. Though these circumstances sometimes gave rise to situations which caused some personal discontent, it will have been evident that the Australian medical service was treated fairly, indeed generously. Minor problems arose in connection with the medical service in the field, but these were readily solved by conference between the A.D.M.S., A.I.F., and the British director or his deputies.

Disposal of Australian units

Question and debate as to the disposal and work of the Australian base medical units, which became a prominent feature in the conversations and correspondence between the A.D.M.S., A.I.F., and the D.M.S., E.E.F., or his subordinate officers, were closely related to a factor in medical administration that went deeper than even the requirements of efficiency. Before the war no one had realised how strong is the clannishness of the Australian. Especially when he is sick or wounded does this manifest itself in an intense desire to be in the company of, and to be nursed and treated by, men and women of his own country. Neither the intensity of the feeling nor the advisability of gratifying it was at first appreciated by the British authorities. No such policy was in existence when the main body of the A.I.F. left Egypt. The D.M.S., A.I.F., considered that all the base hospital accommodation should be provided by British units and Australian hospitals taken to England or France. The A.D.M.S., A.I.F. in Egypt, on the contrary, from the beginning of his administration made this policy one of his prime objectives. The provision by Australia of full medical establishment for Australian field formations had ensured the treatment of Australians in their own divisional units. But behind the divisional area, on the lines of communication and until the base was reached, Australians were treated and transported entirely in British units. There were no Australian or New Zealand casualty clearing stations on the long stage from the battlefield to the base: nor was there any motor ambulance convoy or hospital train other than British.

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No. 2 A.S.H.

For a time No. 2 Australian Stationary Hospital—throughout the campaign at the disposal of British headquarters—was used on the lines of communication. This was transferred from Port Said to Mahemdia near Romani—where for four months it had little to do—and in March, 1917, was moved to El Arish, where the unit acted as the principal clearing centre for all formations in the First and Second Battles of Gaza.[9] Thereafter, for reasons relating chiefly to the requirements of Australian sick at the base, but entailing personal involvements that caused considerable feeling at the time, the unit was moved to Moascar, the Australian Training Centre, where it served as the Camp Hospital.

The case of No. 14 A.G.H.

All casualties from the Sinai and Palestine fronts, when evacuated to the base, passed through stationary hospital or casualty clearing stations at Kantara, and thence by ferry across the Canal for entrainment to Port Said, Cairo, or Alexandria, the three chief hospital centres in Egypt. After October, 1916, No. 31 British General Hospital[10] at Port Said took the majority of infectious cases, Australian and British, from the Sinai front, and till October No. 2 Australian Stationary Hospital also had been stationed there. No. 14 Australian General Hospital, on its arrival in Egypt and establishment at Abbassia Barracks, Cairo, at first received all other Australian sick

[9] "The turnover of patients was enormous." On April 21st, 1,265 patients were admitted and 799 evacuated. The staff was under strength, and 2 R.A.M.C. officers and 25 other ranks R.A.M.C. were sent to assist; the attached dental unit ceased its ordinary work and was of great assistance. In Aug. its establishment was reduced to 400 beds, and on the 16th all patients were evacuated. The following summary of admissions is of interest:—

1917.	Australian Sick.	Australian Wounded.	New Zealand Sick.	New Zealand Wounded.	British Sick.	British Wounded.	B.W.I. Sick.	Total.
March ..	81	6	11	—	734	493	2	1,327
April ..	261	326	59	46	2,151	2,738	55	5,636
May ..	304	25	51	19	1,318	261	37	2,015
June ..	436	2	103	5	2,461	120	37	3,104
July ..	667	16	139	12	3,451	154	25	4,464
August	348	2	61	—	2,753	102	18	3,284
Total ..	2,097	377	424	82	12,868	3,868	174	19,800

[10] This hospital arrived in Egypt from England in Dec., 1915, and opened at Port Said to serve the forces on the Canal.

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and wounded, its 520 beds for a time proving sufficient. With the increasing wastage and accumulated chronic cases as the campaign advanced, its accommodation became inadequate. The increase in establishment to 1,040 beds, authorised in June, 1917, arrived in October, the overplus of Australian casualties being meanwhile treated in various British hospitals. At No. 14 A.G.H. the average number of beds occupied during the first six months of 1917 was 610, during the second 915. Of these cases, 31.68 per cent were discharged to convalescent dépôts; 51.7 per cent "to duty" (i.e. direct to the Australian Training Dépôt, Moascar); 11.89 per cent. as invalids to Australia; 0.1 per cent for "change" to England. This hospital occupied a peculiarly advantageous position with regard to treatment (which undoubtedly had its effect on the troops), in that all cases, sick or wounded, returned to it when again disabled.

In the internal working of this unit there was felt the influence of the extraordinary relations between Great Britain and her dominions which have since crystallised into the beneficent ideal of a British Commonwealth of Nations. The practical difficulties of realising that ideal are at once a warning and an incentive. For administration as regards efficiency the unit was under the control of the British A.D.M.S., Cairo District, a most capable and tactful officer, but it was also, particularly as regards its staff, a responsibility of the A.D.M.S., A.I.F. The right, however, of the A.D.M.S., A.I.F., to exercise any supervision was at first questioned by the D.M.S., E.E.F.; and its commanding officer, who was appointed in Australia and had had no experience in the management of military hospitals, sought guidance only from the experienced British officer over him. When it was pointed out that the Australian Government would hold its own administrative officer, and not the British administration, responsible for any possible defects in treatment, the A.D.M.S., A.I.F., was given the right of inspection, of enquiry into the welfare and treatment of cases, and of providing extra equipment. Certain changes were made in the staff, and no further friction of any sort occurred.

The working of this unit as a general hospital, however, was made difficult by the fact that, though no Australian

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92. Senior Australian medical administrative officers who served with the Egyptian Expeditionary Force

Top left: Colonel D. G. Croll, A.D.M.S., Anzac Mounted Div., from August 1917 to March 1919. *Top right:* Colonel G. P. Dixon, A.D.M.S., Aust. Mounted Div., from July 1917 to July 1918. *Centre:* Colonel R. M. Downes, D.D.M.S., Desert Mounted Corps and D.D.M.S., A.I.F. in Egypt. *Bottom left:* Colonel R. Fowler, A.D.M.S., Aust. Mounted Div., from July 1918 to May 1919. *Bottom right:* Lieut.-Colonel A. L. Dawson, A.D.M.S., A.I.F. in Egypt, from April 1918 to March 1919.

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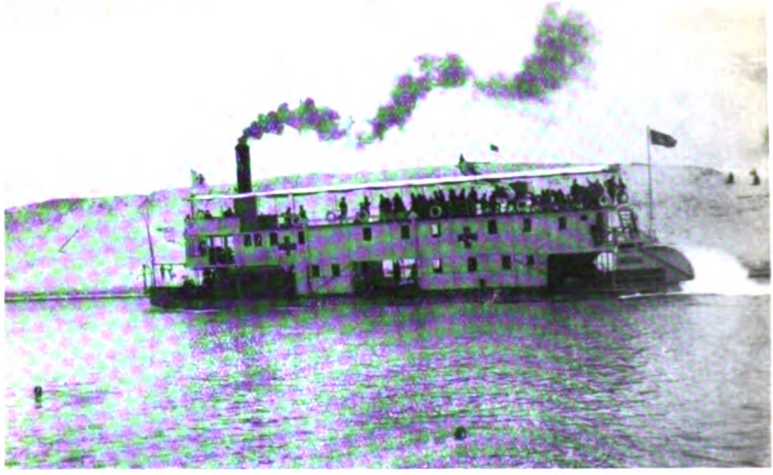

93. Hospital ferry used between Kantara and Port Said

Lent by Air Mechanic R. L. Sillett, No. 1 Sqn., A.F.C.
Aust. War Memorial Collection No. J2626.

94. An operating car attached to the Desert Mounted Corps operating unit, at Shellal, October 1917

Lent by Lieut.-Col nel J. C. Storey, A.A.M.C.
Aust. War Memorial Collection No. A2844.

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convalescent dépôt or hospital had been provided by Australia to replace the system built up during the Gallipoli campaign, it was still desired by the Australian authorities—and urged in season and out of season by the Australian Red Cross Society and kindred organisations—that Australians should convalesce under the laxer régime[11] permitted in Australian units; in consequence patients were apt to be retained in this hospital when past the stage of active treatment. Until the end of 1916 Australian soldiers completed medical convalescence in the fine convalescent home at Montazah near Alexandria maintained conjointly by the British and Australian Red Cross Societies. At the end of the year the Australian Red Cross dropped out of this partnership, and in May, 1917, the D.M.S., E.E.F., was asked to provide a special convalescent dépôt for Australians. After some demur[12] he gave his consent, provided that the Australian Red Cross Society would pay for the building. A search for a suitable building proved unavailing, and the project was dropped. Australian convalescents continued to go to Montazah or, either direct or by transfer, to the British convalescent dépôts. In August a project—emanating through the Australian Government from the Australian Red Cross Society—was put in hand to take over the Grand Hotel at Helouan; but before completion of arrangements this proposal also was dropped in view of the impending concentration of Australian medical activities in the Canal zone.[13]

Special convalescing arrangements desired

Recovered or crippled Australian light horsemen were disposed of on the one hand by return to the front by way of the Australian and New Zealand Training Dépôt at Moascar, on the other by invaliding to Australia. Temporary alternatives were convalescence in England, or classification as "temporarily" or "partly" unfit and allocation for "B"

Classification—a standing board

[11] The greater amount of money which he had to spend, together doubtless with a greater inherent desire for personal liberty of action engendered by conditions of life in Australia, made the Australian convalescent soldier more desirous of leave—one of the chief motives of discontent—than his British comrade.

[12] On the ground that ample convalescent accommodation was available in British dépôts and that "to charge the Imperial Government for a separate establishment for Australians" would be "uneconomical."

[13] For sick nurses a British convalescent home at Bulkeley, just outside Alexandria, maintained by the British and contributed to by the Australian Red Cross Society, provided excellent facilities for convalescence.

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class duties. For some time the machinery for classifying convalescents into their appropriate categories was far from satisfactory. Medical boards at first considered only the question of "return to Australia," and were formed as required from the hospital staff, their decisions being subject to review by the A.D.M.S., A.I.F., or his deputy. After a period of this unsatisfactory plan the senior physician and senior surgeon of No. 14 Australian General Hospital were appointed a "standing board" to determine the state of fitness of all recovered "unfits" and to categorise them accordingly. Before taking up duty, these officers were given a short tour with the Anzac Mounted Division, to acquaint them with the conditions involved in "return to the front." Systematic categorising into "A," "B," and "C" classes, with periodical reclassification of "B" class men, was initiated, and was eventually carried out entirely by this standing medical board, which paid periodical visits to the Moascar training centre. The work of this board,[14] carried out by its two members in addition to their hospital duties, was of great value in promoting the most efficient use of man power.

A use found for "B" class men

The procedure at first adopted of sending to England for convalescence men who were expected to be fit for duty within six months was soon dropped in favour of convalescence in Egypt. All convalescents boarded as unlikely to be fit within six months were invalided to Australia. With the formation of the 4th Light Horse Brigade, the economy in man-power necessitated thereby, and by the increasing wear and tear of the campaign, made it necessary to utilise the "B" class wherever possible; at the base to a considerable extent they replaced "A" class men. In the case of the medical service the two hospitals could absorb more A.A.M.C. "B" class men than were available. Failure attended an attempt to employ "B" class men in the field as clerks and batmen.

The Moascar training camp was organised to deal with reinforcements and recovered patients. On transfer thereto,

[14] The board consisted, from its inception till Feb., 1919, of Lieut.-Col. A. J. H. Saw (surgical) and Lieut.-Col. C. B. Blackburn (medical).

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"A" class men were drafted into training regiments, each of which bore a number corresponding to that of the brigade to which the men belonged. In these they underwent a course of retraining, alongside the reinforcements from Australia, until they were included in a draft for the field. In the early part of the campaign a medical officer was attached to each of these regiments and had a small hospital in which men slightly ill were kept under observation. In July, 1917, these were replaced by an A.A.M.C. training cadre with a 20-bed hospital. At this centre all sick parades were held and reinforcements and recovered men made medically and dentally fit for the front. Six-monthly re-inoculation against enteric and three-monthly against cholera were carried out and entered in the paybook, as were also any further courses of quinine recommended for malarial cases on discharge from hospital. The training cadre was placed under the command of one of the two permanent A.A.M.C. quartermasters in Egypt and, in addition to the above-named function, acted as the training centre for A.A.M.C. reinforcements, many of whom, having been transferred from other branches of the army, required complete instruction. Such transfers were made necessary by the fact that the normal A.A.M.C. reinforcements of 3 per cent per month were insufficient. Besides the ordinary medical work, the training comprised instruction in the care of horses, equitation and drill, four-in-hand driving, farriery, and signalling. The last became in this campaign an important matter for the medical service, and medical units were provided with complete means of signalling communication—heliographs, lamps, field telephones, and semaphore flags—and themselves trained their own operators. When the tactical situation permitted, schools of instruction were held in the cadre for medical personnel, commissioned and non-commissioned, from the field units; the former included also British medical officers from the Desert Mounted Corps.

"A" class retrained and hardened

A.A.M.C. training centre

The medical supervision of the whole training centre (Moascar Training Camp) was carried out by a Senior Medical Officer specially selected for the post and rarely

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changed. In addition to the medical oversight of the centre, this officer had important responsibilities in connection with the control of infectious disease, whether of local origin or from the transports, and with the prevention of their spread from the base to the troops in the field. On arrival, reinforcements for mounted formations entered a Central Training Dépôt half-a-mile from the main camp. On advice from the Senior Medical Officer at Suez that there was infectious disease on a transport—the most common being measles and mumps—the arriving reinforcements were isolated for the necessary period of six weeks, during which inoculation was carried out and necessary dental treatment instituted. From the Central Training Dépôt reinforcements were transferred to the training regiments.[15]

Infectious disease from transports

The means whereby invalids were returned to Australia were varied and somewhat fortuitous. For the whole A.I.F. only two fully equipped Australian hospital ships had been provided, and it was only occasionally that space was available on these for invalids from Egypt. The type of transport available in place of hospital ship for return of invalids to Australia was not always suitable, and their equipping was for a time haphazard. The plan ultimately adopted was that the D.A.D.M.S., A.I.F. in Egypt, informed the British Embarkation Medical Officer at Suez as to the equipment required for the complement on each transport. The latter then arranged for its supply—chiefly from surplus stocks from transports from Australia—while the Australian Red Cross Society added extras for the voyage. During the period from September, 1916, until the opening of the second Palestine offensive at the end of October, 1917, one Australian hospital ship and seven prepared transports took to Australia 1,587 invalids, of whom some 1,100 were invalided through sickness.

Invaliding: problem of ships

[15] The British organisation corresponding to the medical organisation of the Moascar Training Centre was the so-called "Reception Station" at Kantara. This formation was peculiar to Egypt, its functions being:—to take local sick parades; to examine drafts of reinforcements and men discharged from hospital, to ensure freedom from infection; to eliminate obvious unfits and present doubtful cases to the medical board; to examine outgoing drafts and carry out inoculations where necessary.

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Dental and Nursing services

Up till the end of 1917 the Dental Service in Egypt consisted of eight dental units, one being allotted to each of the five field ambulances, the two hospitals, and the training dépôt. Two dental units, for the 4th Light Horse and Camel Field Ambulances, were formed locally. Up to this date only urgent dental treatment could be carried out in the field and at the base: circumstances did not yet permit of routine examination for early detection of defects.

Till the middle of 1917 the Australian Nursing Service in the east was comprised within the staff of No. 14 General Hospital, whose matron, Miss Creal, acted as Principal Matron. Early in 1917, at the instance of the Director-General at the War Office, Australia was asked to send nurses to staff four British general hospitals at Salonica. On July, 19th three "nursing units,"[16] each comprising ninety-one nurses, arrived at Suez in charge of Matron McHardie White, and went direct to Alexandria for transhipment to Salonica. Twenty-nine nurses selected from the staff of No. 14 General Hospital were exchanged with junior nurses from these units for promotion. Of the 4th Unit, thirty went from Bombay, and on October 6th sixty-one arrived from Australia to complete it, but by orders of the D.M.S., E.E.F., they were distributed to British hospitals in Egypt owing to the imminence of fighting on a large scale in Palestine.

[16] That is the nursing staff for a double general hospital of 1,040 beds

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CHAPTER VIII

THE SECOND PALESTINE OFFENSIVE

At the end of October, 1917, General Allenby struck the Gaza-Beersheba line, employing his mounted troops in a typical cavalry movement, a wide semicircular descent upon the enemy's left and rear, which was ultimately followed by the capture of Jerusalem. The medical service, being faced with the problem of keeping pace, relied upon divisional receiving stations in echelon controlled by corps to play the rôle proper to the casualty clearing stations, which were immobile. Much interest attaches to their experience, since it must largely influence the method of employment of a post-war innovation—the "mobile section" of casualty clearing stations—by which the need will be met in future operations. It was found that the difficulty of communication during the swift passage of the mounted corps from one line of communications to another caused some dislocation of the scheme. The health of the troops during this period remained extraordinarily good, but preparations were made for malaria, which was anticipated for the hot season.

* * *

The situation in Europe at the end of the summer of 1917, brought about by the failure of the French summer offensive and the success of the German submarine campaign, made the British Cabinet desirous of some spectacular success in the East. Political considerations coincided with the strategic requirements of the situation in that theatre of war: both could be met by an offensive on a large scale in Palestine. By October the preparations for this were complete, and the plan of campaign worked out by Allenby and his general staff was as follows:—

Plan for Third Battle of Gaza

1. A week's bombardment of Gaza; secret concentration of two mounted and four infantry divisions opposite the Turkish left at Beersheba.
2. Capture of Beersheba and its water-supply by a swift and overwhelming attack by the Desert Mounted Corps and XX Corps.

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3. Fixation of enemy's attention on Gaza by an attack by the XXI Corps in preparation for—

4. Assault by XX Corps on Turkish left flank and on Hareira and Sheria with the object of rolling up his line towards Gaza: cavalry to push forward for water on the Wady Hesi and by flanking movement to threaten the Turkish line of retreat.

The fighting strength of the three corps on the eve of the operations was 100,189, namely—

Desert Mounted Corps	..	745 officers, 17,935 others.
XX Corps	..	1,435 officers, 44,171 others.
XXI Corps	..	1,154 officers, 34,759 others.

The enemy held a line which stretched for thirty miles from the sea near Gaza to Beersheba. East of Gaza, this line was a chain of strong earthworks on dominating positions ending at Beersheba. From Sheikh Abbas the British line diverged from the enemy, along the Wady Ghuzze: opposite Beersheba "No-Man's Land" was many miles in depth.

For a substantial success it was imperative that Beersheba should be captured on the first day, so as to effect a tactical surprise and reach water. To this end every effort had been made to hide the vast preparations on the Shellal flank which were necessary to allow a force of four infantry and two cavalry divisions to attack a strongly held position after a long march in country so waterless and heavy that, according to the Turkish appreciation, it would not permit the approach of a force greater than one cavalry and one infantry division. For the attack on Beersheba the four divisions of the XX Corps were to advance from the south and south-west, while the Anzac and Australian Mounted Divisions, after a long détour, would attack from the north-east and south-east, close to the main road to Hebron. The Yeomanry Mounted Division, with the Imperial Camel Corps Brigade, was to remain in reserve in the Shellal region. From Shellal to Beersheba in a direct line is twenty miles; by the route to be followed by the mounted troops it was fifty-four. It was therefore arranged that the Anzac Mounted Division should begin its final approach march from Asluj, twenty-five miles from Beersheba; the Australian Mounted Division would follow in its rear. The 7th British Mounted Brigade, attached to the Desert Mounted Corps, was to move up on the right of the infantry.

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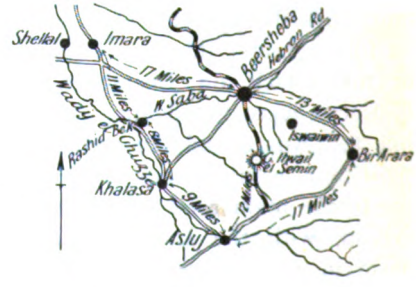
Oct. 22—orders for attack on Beersheba

On October 22nd Allenby's operation orders were issued. They included, in the medical arrangements, provision for three casualty clearing stations at Imara (to which ran a tactical branch railway line from Rafa), and two at Deir el Belah (now railhead on the main strategic railway). The former were to be sited beforehand, but no tents were to be erected until sunset on the first day of operations. Medical arrangements by the D.D.M.S., Desert Mounted Corps, were designed to meet the situation that would arise not only if the operations should be carried out according to plan, but also if Beersheba should not be captured on the first day, in which case at least a portion of the mounted troops must return for water, and with them would go the wounded. Evacuation to Imara in the latter case would occupy ten hours by motor ambulance waggon, at least twenty-four by camel convoy. It was therefore arranged that casualties should be held in the mobile sections of field ambulances pending the capture of Beersheba; thence in the event of success they would go by the direct route to El Imara (seventeen miles), the corps transport being supplemented by that of the infantry. The alternative route to Imara in the event of failure or for urgent operation cases was arranged back along the long flank approach, *viâ* Asluj and Rashid Bek, where would be stationed divisional receiving stations under the D.D.M.S., Desert Mounted Corps together with the operating unit. The eighteen heavy ambulance waggons from the motor ambulance convoy would be used on the last stage to Imara; light cars of the field ambulances—of which cars there were now forty-eight, half of them to be controlled by the D.D.M.S., Desert Mounted Corps—would work according to circumstances on the two stages in advance.



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Concentration

The concentration and approach marches over the difficult and waterless country occupied ten days and involved great strain on the medical service, chiefly because of the extreme secrecy demanded and the absence of roads fit for the ambulance waggons. The operating car was brought to Asluj, but with great difficulty.[1] The day of the offensive dawned, however, with the medical situation in satisfactory accordance with the original plan, namely, Nos. 35, 65, and 75 Casualty Clearing Stations at Imara; the cars of the Motor Ambulance Convoy attached to the Desert Mounted Corps running between them and the Anzac Mounted Division receiving station at Rashid Bek; the Australian Mounted Division receiving station and Operating Unit, with some of the light-motor ambulance waggons, at Asluj; mobile sections of field ambulances with their brigades; cacolet camels following in rear of the divisions: the remaining light-motor ambulance waggons following on by the steep and winding eastern road from Asluj. Moving out from their starting points on the evening of October 30th, the mounted divisions successfully accomplished their final approach march over rough and unknown country in good time to join the infantry in the attack on Beersheba on the morning of October 31st. The XX Corps, attacking south and south-west, rapidly carried out its part. The light horse was held up, but by hard fighting, culminating in the historic charge of the 4th Light Horse Brigade, the town was taken by dusk.

Oct. 31–Nov. 2—clearance of wounded

In the final rush the ambulance bearers followed so closely on the regiments that the wounded were collected by them in the field where they fell. Divisional collecting stations were formed some three miles east of Beersheba by the mobile sections, the first by 12.30 p.m. at Khasm Zanna, a second (the first being full) at 7 p.m. nearer Beersheba. In these the wounded from the mounted divisions, numbering 165, were retained till next day (November 1st). The motor ambulance waggons arrived at 11 a.m. on the morning of the

[1] It was in these operations that the "Thomas" splint was for the first time supplied for general use in the field units.

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attack, and at 7 a.m. on the 1st the operating unit and Australian Mounted Division receiving station arrived and took over a Turkish hospital in Beersheba, to which the wounded were transferred. Later came the Anzac Mounted Division receiving station and convoy cars, and by 11 a.m. evacuation was in full swing to Imara by Motor Ambulance Convoy cars and light (Ford) motor ambulance waggons.

The collecting and evacuation of wounded had worked smoothly according to plan, and there was little difficulty in organising satisfactory medical arrangements in Beersheba, though the conditions in this dirty and uninteresting village were very unpleasant. It is situated in a depression amid a vast extent of dry, brown, arid plain, and for several days a strong hot dry east wind filled the air with clouds of fine penetrating dust raised by thousands of camels, horses, and men passing through the narrow streets.[2] The only water for many miles was from the wells of Abraham in the north of the village, and a shortage necessitated the postponement of the second phase of operations, against the entrenchments covering Tel esh Sheria.

The Anzac Mounted Division receiving station remained in reserve; on Nov. 2nd the XX Corps took over the Turkish hospital from the Australian Mounted Division receiving station, and the latter was established in the town hall. Both were kept occupied with wounded from the fighting in the hills north of the city.

Attack on Gaza—Nov. 1

Meanwhile the second phase of the offensive—the limited attack on Gaza fortifications to hold the enemy on that flank while the main attack was pressed on his left and centre—was carried out with great success by the XXI Corps on November 1st. At the same time the 53rd Division of the XX Corps and the Imperial Camel Corps Brigade moved against the enemy position in the wild hilly country which, north and north-east of Beersheba, rises to some 2,500 feet at Tel el Khuweilfeh and Ras el Nagb. This movement was a preliminary to the attack by the rest of the XX Corps on the centre towards

[2] Medical units again suffered severely from bombing.

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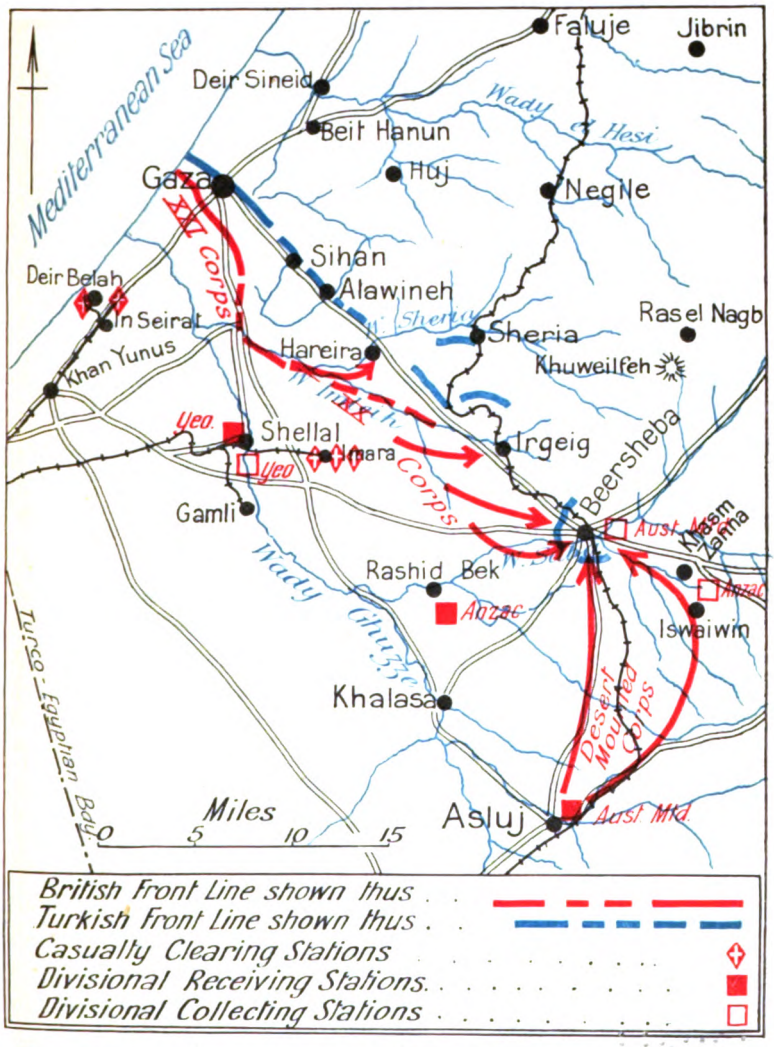
Map No. 17



THE ATTACK ON BEERSHEBA BY THE DESERT MOUNTED CORPS, SHOWING THE MEDICAL SITUATION ON 31ST OCTOBER, 1917

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Tel esh Sheria and Abu Hareira, and the struggle rapidly increased in intensity as the Turks threw in their reserve divisions in fierce counter-attacks against the right flank.

Barrow's Force— Nov. 2-5

On November 2nd and 3rd further attacks towards Khuweilfeh were made by the 53rd Division, 7th Mounted, and Imperial Camel Corps Brigades. In these little progress was made, and on the 4th and 5th the Turks strongly counter-attacked. During this time the main body of mounted troops were rendered almost immobile by the water problem, and the Australian Mounted Division was sent back to Karm, while the Anzac Mounted Division remained at Beersheba; the yeomanry were still at Shellal. A special force (Barrow's), consisting of the Yeomanry Mounted Division, New Zealand Mounted Rifles Brigade, 53rd Division, and Imperial Camel Corps Brigade (attached to the Desert Mounted Corps) was now organised to deal with this situation which on the right flank was holding up the main offensive, and on the

Nov. 6

6th the whole Turkish position on the right and centre was successfully assaulted by Barrow's Force on the right and by the XX Corps in the centre, with the Yeomanry Mounted Division, on the left of Barrow's Force, in touch with the infantry. The 53rd Division carried the Khuweilfeh heights by assault. At Tel esh Sheria the Turkish line was widely breached by the 10th

Nov. 7-8. Turk slips through

and 60th Divisions, and through this breach, on the 7th, the Desert Mounted Corps (minus the Yeomanry Mounted Division, which was held on the right flank) moved to its delayed flanking movement towards the Gaza-Latron road, the Turk's line of communication for his right. But the same night the enemy, withdrawing from Gaza, slipped through, and the mounted troops, followed closely by the infantry, found themselves engaged in the pursuit of a retreating but not beaten opponent up the Philistia Plain. His determined rear-guards fought repeated delaying actions and made occasional counter-attacks from the foot-hills of Judæa, until the stroke against him spent itself and he was able to reach hilly country where he could reorganise his resistance.

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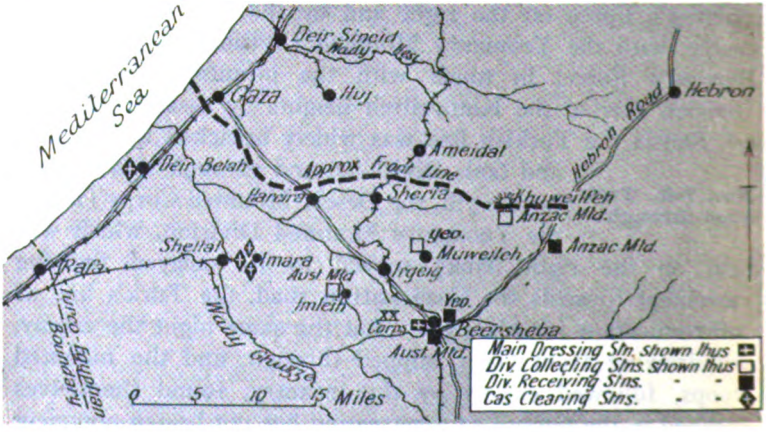
Medical problems after Beersheba

The problems that confronted the medical service after the capture of Beersheba presented three corresponding phases; first, in the fighting in the hill country behind Beersheba; second, in the rapid and scattered movement of the divisions from right to left flank and up the plain of Philistia; third, in the semi-static warfare that was resumed as the attack spent itself. Each of these phases presented special problems and difficulties; and to those inherent in the circumstances of the fighting there were sometimes added embarrassments and hindrances due to the "slings and arrows of outrageous fortune."

D.R.S's at Beersheba

During the first phase the divisional receiving stations of the Anzac and Australian Mounted Divisions and (on the 6th) the Yeomanry Mounted Division were concentrated in the vicinity of Beersheba. There they received wounded evacuated from collecting stations in the foot-hills and on the Hebron road, at which they had arrived by light motors from dressing-stations



Medical situation in the Desert Mounted Corps, 6th November, 1917

a few miles farther in the hills; casualties were brought to the latter by sandcarts and camels. Also in the fighting on the 6th at Khuweilfeh and Abu Hareira evacuation of both

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mounted troops and infantry centred on Beersheba; divisional receiving stations and the infantry main dressing-stations all evacuated to Imara.[3]

The dash for the coast

The next phase covers that period of fighting which ended in the capture of Jaffa on November 16th. The pursuit was carried up through the Maritime Plain, which, lying between the narrow coastal sandy belt and the Judæan hills, is fertile but soft and intersected by three small streams running to the coast. The water supply, drawn from the deep wells in picturesque but scattered villages, was altogether insufficient to allow of such a great body of horses and men being watered fast enough to permit of rapid pursuit.

The arrangements for the evacuation of wounded during this phase were based on the use of divisional receiving stations in echelon. As each one became free on the evacuation of its wounded rearward, it was pushed ahead of the other two and relieved the divisional collecting station.[4] When it in turn became full, the process was repeated.

Medical service in difficulties

When the Anzac and Australian Mounted Divisions, on the right of the 60th, began on November 7th their dash forward through the gap in the Turkish line at Tel esh Sheria, their two receiving stations were anchored near or in Beersheba by casualties from the hill fighting, and the eighteen motor ambulance convoy cars were fully occupied in evacuation to the Imara group of casualty clearing stations. As the first link in the chain of receiving stations which, by the scheme that has been described, should link up the rapidly moving divisional collecting stations to the stationary casualty clearing stations, the Yeomanry Mounted Division receiving station, together with the immobile section of the 7th Mounted

[3] The medical arrangements for Barrow's Force were in the hands of the D.D.M.S., Desert Mtd. Corps, and for the few days that the force existed, these added greatly to his difficulties, distracting his attention which was urgently required for the divisions of the Desert Mtd. Corps then rapidly moving to the left flank. In this connection it may be noted that, with the fine Beersheba-Hebron-Jerusalem road behind him, the enemy maintained a constant threat on the right flank for some weeks, making necessary the retention of a considerable British force.

[4] Formed, it may be recalled (*page 633*), in each mounted division by tent subdivision personnel from one or more of the mobile sections. Their movements were entirely controlled by the A.D.M.S. of the division, who was responsible for evacuation from his divisional collecting station to the divisional receiving station, which was under corps control.

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Field Ambulance, was sent to Irgeig, whence it was to evacuate direct to Imara. From the outset the medical plans went amiss. The direct route to Imara proved impossible, and consequently that *viâ* Beersheba—from forty to fifty miles from the collecting stations—had to be followed. Moreover the Yeomanry Mounted Division receiving station had lost all its transport, and its move was delayed till motor lorries could be obtained from the army service corps. The light motor ambulance waggons of the Anzac Mounted Division also went astray.[5] But the most serious obstacles to the effective co-ordination between divisional and corps headquarters and, *pari passu*, to the linking up of divisional and corps evacuation, lay in the extraordinary difficulties of intercommunication and travelling.[6] In addition to the mechanical difficulties of transportation the roads, or rather tracks, which characterised the cross-country route followed by the divisions were soon cut up by the horses and made almost impassable for motor traffic. Reference to the map will make clear the special difficulties brought about by this factor in the situation. From Beersheba to Gaza ran a fine road connected at each end with thoroughfares ending

[5] The transport of the Yeomanry Mtd. Div. receiving station had been taken over by the Divisional Train. Under the circumstances, when successful evacuation was dependent on transport, the consequences of this unauthorised action was severely felt.

[6] It was sometimes a matter of days before ordinary signal messages travelled between A.D'sM.S. and the D.D.M.S. Aeroplane messages provided the only rapid method of communication, and this means could seldom be used. Wireless telegraphy was rarely available for medical messages, so that personal visitation was the only practical way of keeping in touch with the rapidly altering situation in regard to the number and disposition of the casualties and the movements of the divisions. But the nature of the country made motor travelling very slow. The roads, or rather tracks, were ill defined and did not coincide with those shown on the maps, while the fine powdery dust—which filled the air wherever there was any traffic—penetrated the ignition coils of the Ford cars (the only kind usable on these tracks) and often put them out of action. The following extracts from the diary of the D.D.M.S., Desert Mounted Corps, illustrate the difficulty of controlling evacuation:—

> 8.11.17. Spent most of the day in Beersheba trying to get a car that would go so as to catch up with the divisions . . . as now no signal communication can be got with anyone in front.
>
> 9.11.17. Started out early for Irgeig (6 miles). Half-way on, the car broke down . . . after much delay forced to return to Beersheba. Car broke down a mile from Beersheba; walked back. Started again in afternoon, stuck in a wady and broke radiator collar; man-handled out, and arrived Irgeig 1630 where M.A.C. had been waiting for me since 1000.
>
> 10.11.17. Car again failed on hill . . . broke down on N. side of Wady Sheria. Went on in ambulance, which at once broke down . . . my own car caught up. Arrangements gone all wrong through delay and absence of communications.
>
> 11.11.17. Pushed ½ mile by natives in Wady Jemammeh; stuck three more times in day, and pushed out by natives. At last reached advanced headquarters in evening.

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respectively at Jerusalem and Latron (on the Jerusalem-Jaffa road). The quadrilateral between these was traversed by the Turkish railway, which, however, had been demolished; formed roads were almost absent. A gap was rapidly widening between the front line units and the casualty clearing stations at Imara, and the problem of bridging it, with insufficient transport and receiving stations widely dispersed, was beset with difficulties. By November 9th, with evacuation on the right flank, still based on Beersheba and Imara, the divisional collecting stations had reached Ameidat and Huj. The Anzac and Australian Mounted Divisions were now on the left flank, and were advancing up the plain of Philistia. To get more closely in touch, another link was added to the chain of corps evacuation by moving the 7th (British) Mounted Field Ambulance immobile section to Tel esh Sheria—the Yeomanry Mounted Division receiving station being still immobile through lack of its transport—and this unit now became the pivot of corps evacuation.[7] The lost Anzac Mounted Division light motor ambulances, located on the Hebron road, were brought over to Tel esh Sheria to ply to the casualty clearing stations.

Nov. 9

Water difficulties called a halt of twenty-four hours in the moves of the divisions and gave a brief respite to their medical services. On the 10th the formations of the Desert Mounted Corps took up the advance, closely followed by the infantry. The Australian and Yeomanry Mounted Divisions continued their movement to the left flank, which put them with the Anzac Mounted Division astride the Gaza-Latron road. It had become obvious that the Desert Mounted Corps was committed to an advance up the coastal plain, to which it had crossed from the right flank during November 6th to 10th. It was necessary therefore to make evacuation conform to this change of front, and to abandon the Beersheba-Imara route. Lack of communication with the D.M.S., E.E.F., at G.H.Q. near Khan Yunus, and the absence of information as to roads fit for motors, prevented

Nov. 10—pursuit up coastal plain

[7] On the 10th the Yeomanry Mtd. Div. rejoined the Desert Mtd. Corps on the dissolution of Barrow's Force, which was replaced by "Mott's Detachment."

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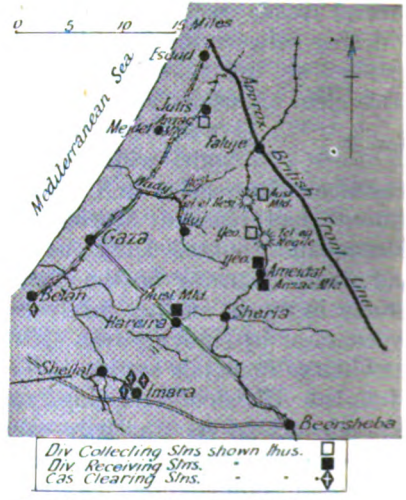
any determination as to the exact route of evacuation, which had to be left to the future; but until the proper route of evacuation had been laid down by the D.M.S., E.E.F., a new temporary pivot for evacuation from the Desert Mounted Corps was formed by transferring the Anzac and Yeomanry Mounted Divisions receiving stations (the latter of which had now regained its transport), together with the operating unit and motor ambulance convoy, to Ameidat, which was at this time refilling point and rendezvous on the supply route to the divisions, and also transferring the Australian Mounted Division receiving station in lorries to Abu Hareira.[8]



Medical situation in the Desert Mounted Corps, 10th November, 1917

On November 11th the advance slowed down; the Anzac Mounted Division passed into corps reserve, its place on the coastal flank being taken by the Yeomanry Mounted Division. The medical situation at this stage was far from good. The most advanced divisional collecting station (Anzac) was at Julis, with the Australian and Yeomanry stations[9] a few miles off at Keratiyeh and El Faluje. All the divisional units were full; medical and commissariat supplies were running short. Few of their light motors remained serviceable. Only in the Yeomanry Mounted Division was the medical service untroubled—largely because a special officer was put in charge of the motor

Nov. 11

[8] The N.Z. Mtd. Rifles Bde. (with its fld. amb.) remained on the Hebron road till Nov. 11, when it rejoined the Anzac Mtd. Div. Evacuation of its casualties during this time was arranged by the D.D.M.S., XX Corps.

[9] The last unit had been shelled out of Suafir es Sherkiyeh, with the loss of two medical officers.

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95. THE ANZAC MOUNTED DIVISION RECEIVING STATION AT RESHID BEK, 30TH OCTOBER, 1917

Lent by Major J. A. Heath, A.A.M.C.
Aust. War Memorial Collection No. A2729.

96. AN AUSTRALIAN LIGHT HORSE FIELD AMBULANCE DURING THE ADVANCE THROUGH PALESTINE, 1917

Taken in the Wady el Saba on 31st October, 1917, showing sandcarts of the 3rd L.H. Field Ambulance.

Lent by Major R. G. Woods, A.A.M.C.
Aust. War Memorial Collection No. H10468.

To face p. 670.

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97. Watering ambulance horses at Jemmameh during the advance to Jaffa and Jerusalem, November 1917

It took ninety-six hours to water all the horses here shown.

Lent by Capt. H. G. Leahy, A.A.M.C.
Aust. War Memorial Collection No. A2730.

98. Evacuating wounded by motor ambulance cars from El Burj, December 1917

The rocky country greatly increased the difficulties of evacuation.

Lent by Major R. G. Woods, A.A.M.C.
Aust. War Memorial Collection No. A2735.

To face p. 671.

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transport. Meanwhile the corps chain of evacuation based on Ameidat had been dislocated by the unexpected transfer of the supply route for the divisions from the centre to the left flank, along the Gaza-Latron road through Julis, with railhead at Deir el Belah. The medical centre at Ameidat was thus rendered useless through difficulties of supply and the loss of the facilities afforded by "returning empties" for the evacuation of lightly wounded. The situation was relieved by establishing a new echelon of divisional receiving stations on the new supply route Belah-Gaza-Julis. The Australian Mounted Division receiving station was sent to Julis by means of the attached Motor Ambulance Convoy, evacuation from Ameidat being meanwhile carried out by the D.D.M.S., XX Corps—not the only occasion on which this formation came to the help of the mounted troops. The Australian Mounted Division receiving station relieved the Anzac Mounted Division collecting station and was joined by the Corps Operating Unit. The Anzac Mounted Division receiving station was established at Bureir, the Yeomanry Mounted Division receiving station and 7th Mounted Field Ambulance at Beit Hanun. The new route of evacuation *viâ* Beit Hanun was carried through to the casualty clearing station at Deir el Belah by motor ambulance convoy cars of the XXI Corps.

New line of evacuation necessary

Medical situation in the Desert Mounted Corps, 12th November, 1917

By November 12th the enemy was preparing to make a stand on a lightly entrenched line covering the junction of the Jerusalem-Jaffa railways, with his left in the Judæan hills. On the 14th this line was

Nov. 12—an enemy stand

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successfully attacked by the Australian Mounted Division, XXI Corps, and Yeomanry Mounted Division, supported by the Anzac Mounted Division. This second phase of the offensive ended on the 16th with the capture of Jaffa and the withdrawal of the Turkish Eighth Army behind the river Auja and of the Seventh Army into the Judæan mountains.

Nov. 15—medical situation stabilised

To conform with the general advance of the Desert Mounted and XX Corps, the Anzac Mounted Division receiving station was brought forward to Yebna, where it arrived on November 15th after marching on foot twenty-seven miles from Bureir in soft and broken country in twenty-four hours. Here it took over from the Yeomanry Mounted Division collecting station cases of men wounded in the cavalry charge on the 13th at El Mughair and on the 15th at Abu Shusheh, and also cases from the Anzac Mounted Division. By November 16th medical arrangements had once more taken on a stationary character, evacuation centering on the Anzac Mounted Division receiving station in a large monastery at Ramleh.

Jaffa—town sanitation

With the capture of Jaffa the Desert Mounted Corps was for the first time faced with the task of organising the medical services and sanitation of a town captured from the Turks. Unlike Beersheba, Jaffa was a large town with good streets and a well-built Jewish and European quarter. The only civil hospital was French, with a staff of two nurses: this was taken over and organised by the New Zealand Field Ambulance. The cleansing of the town was effectively carried out by the Anzac Division's sanitary section with the help of gangs of sweepers and six incinerators.

The fighting in this part of the line was confined to two attacks by the enemy, in the first of which on November 25th, there were evacuated to Ramleh[10] sixty-four wounded from the New Zealand Mounted Rifles Brigade, and in the second, on the 27th, twenty-seven from the Imperial Camel Corps Brigade.

[10] At this time the Imp. Camel Corps Bde. was taken out of the line on account of a skin rash among the men, the irritation from which was so intense that loss of sleep rendered a large proportion of the brigade unfit for duty. It was discovered that the disease was identical with camel mange, the parasite being transmitted from the camels. A similar infection had taken place among the troops in the Soudan, though this was not generally known. Vigorous treatment of riders and camels soon eradicated the disease.

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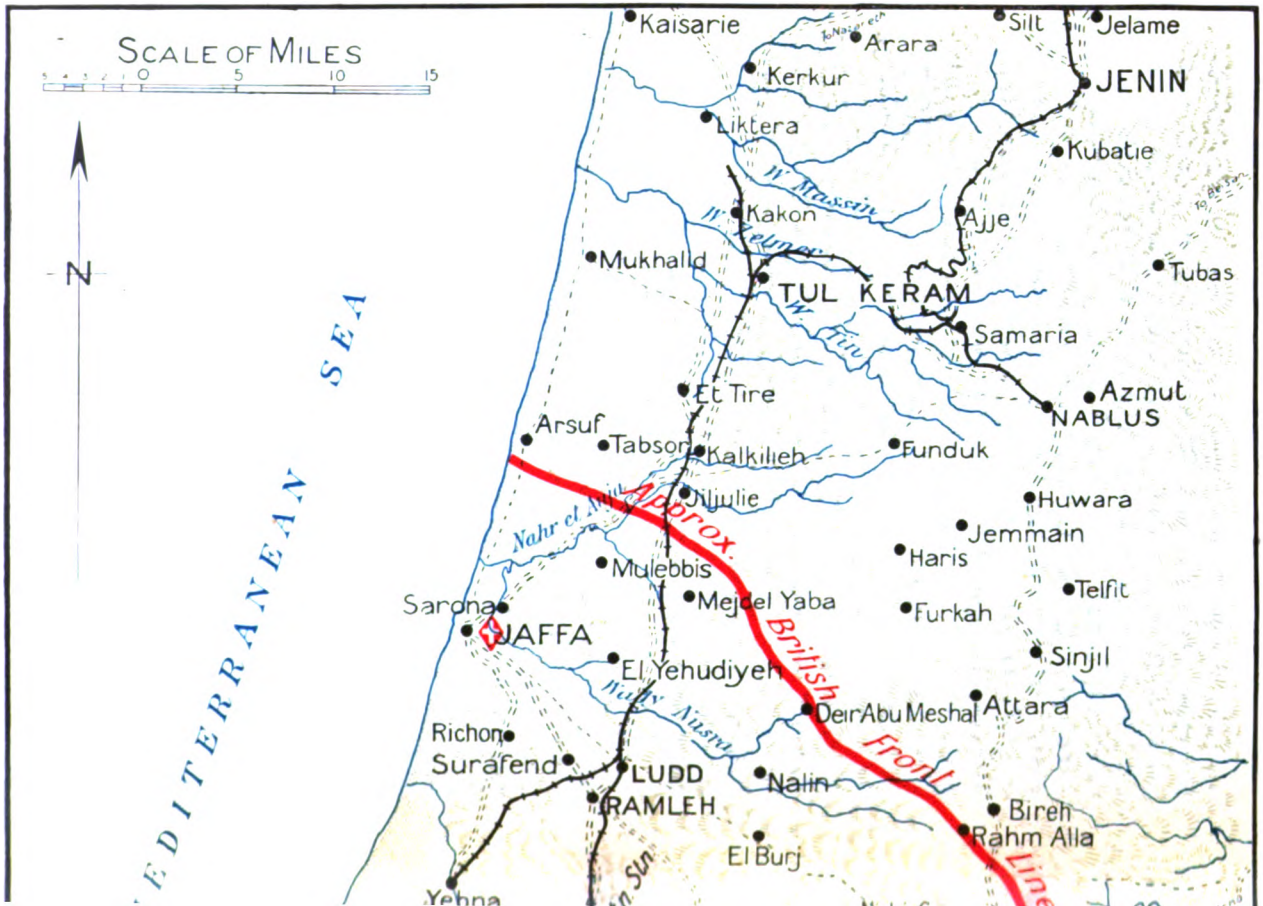
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Mejdel Yaba
Furkah
JAFFA
British
Sinjil
El Yehudiyeh
Front
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Deir Abu Meshal
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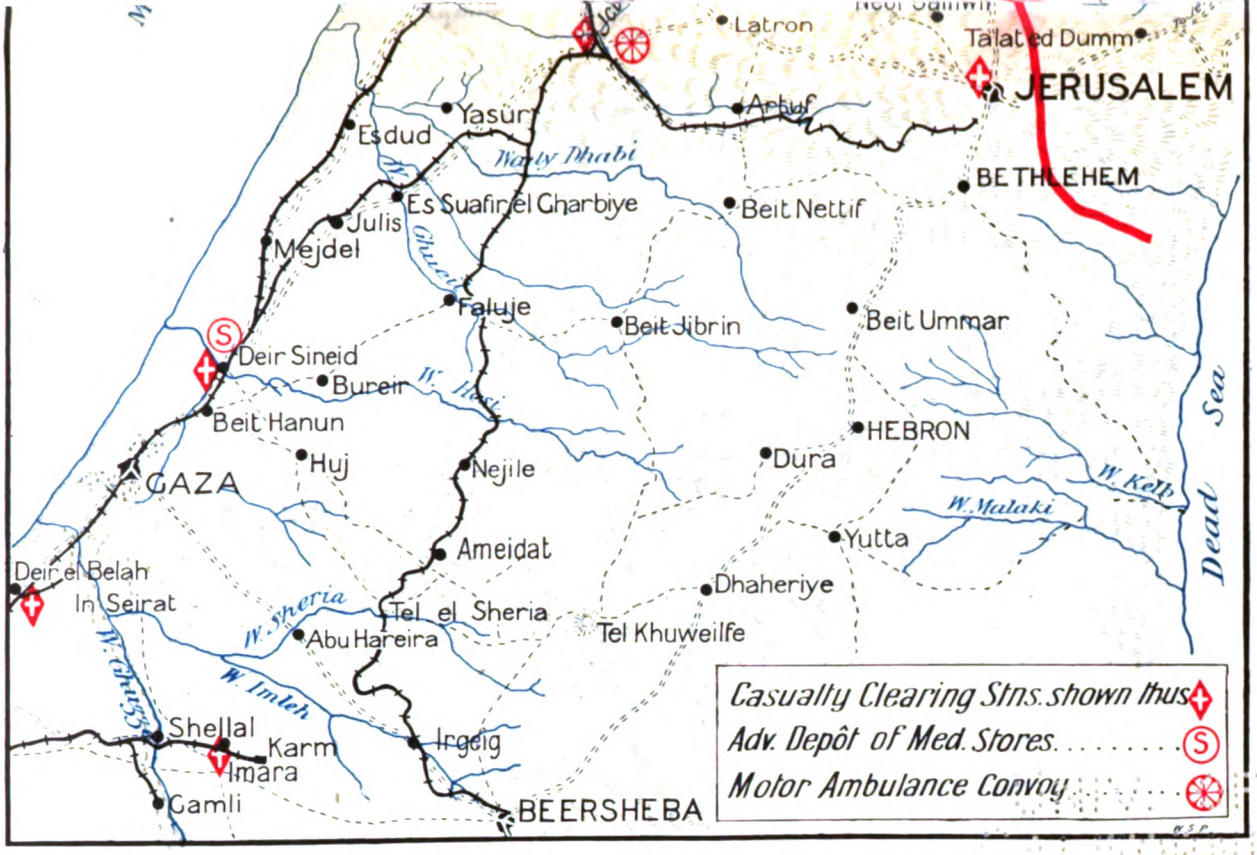
MAP



THE MEDICAL SITUATION ON THE LINES OF COMMUNICATION IN PALESTINE AT THE END OF 1917

Tracks and small roads ------, main roads =====

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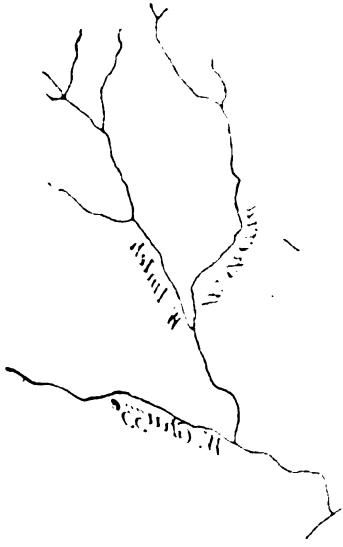

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In view of the demoralisation and separation of the two Turkish armies General Allenby meanwhile had decided to advance on Jerusalem. A first unsuccessful attempt was made by an advance into the hills of two divisions of the XXI Corps up the main Jaffa-Jerusalem road with the Yeomanry Mounted Division on their left with the object of seizing the main road from Nablus to Jerusalem. After heavy fighting the attack was broken off on November 24th with the capture of Nebi Samwil, the "key to Jerusalem" and the farthest point attained by Richard Cœur de Lion in his advance from Jaffa in the third Crusade. The British advance was followed by counter-attacks by the Turks with "storm-troops."

Nov. 22—attack on Jerusalem

The problem of dealing with the casualties from these attacks differed entirely from anything encountered before or later. It resolved itself mainly into individual efforts by detachments of ambulances in roadless and rocky hills rising to 2,500 feet in height, where little or no help could be given by the medical establishments of other divisions. The Yeomanry Mounted Division was the first to become involved. Moving from Ramleh on November 18th against the village of Bireh in the hills ten miles north of Jerusalem, it encountered heavy fighting both in its advance and during the Turkish counter-attacks. Bireh is on the main road running north from Jerusalem to Nablus—the Turk's main line of supply—and, by the track followed, was distant from Ramleh about thirty miles. The hills here are a confused system of steep ridges separated by deep and narrow ravines and covered with boulders of all sizes; the roads were little more than goat-tracks and were very slippery with the heavy rains that now came on; the ravines were morasses. Horses could not be used on the tracks. No ambulance transport could be brought nearer to the fighting than Annabeh, only five miles from Ramleh. Wounds were dressed in little regimental dressing-stations among the rocks, often without cover from shell-fire, the men being carried by ambulance bearers—in some cases as much as two miles—to valleys to which camels could be brought. Thence they were taken to collecting stations at Annabeh and by sandcarts to

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Ramleh—well over two days from the time of wounding. The Australian Camel and 7th Mounted Field Ambulances were sent to Annabeh to help with their transport.

Moves on chain of evacuation

Meanwhile on November 20th the Australian Mounted Division receiving station had moved from Julis to Latron, and the yeomanry station from Beit Hanun to Julis to act as a relay in the chain of evacuation. Coincidently with these moves of the corps units, the Deir el Belah group of casualty clearing stations were moved by the orders of the D.M.S., E.E.F., to Gaza, Beit Hanun, and Junction Station. By this time the Turkish 3-ft. 6-in. gauge line had been repaired from Gaza to Junction Station, and on the 22nd an improvised ambulance train ran between these places to carry 200 sitting and twenty-four lying patients. The broad gauge strategic railway was being rapidly pushed towards Ludd.

Casualties for November

The total casualties for the month's fighting in the E.E.F. were 15,000 (including 11,400 wounded); in the Desert Mounted Corps they numbered 2,440, of which the greater part were incurred during the first fortnight.[11] In addition there was a steadily increasing number of sick, together with wounded and sick from other corps. The Australian Mounted Division receiving station alone admitted 985 wounded and 1,108 sick: the Anzac Mounted Division station dealt with over 3,000 sick and wounded.

December—Jerusalem taken

The month of December, which saw the culmination of the second Palestine offensive in the historic capture of Jerusalem, was a quiet one for the Desert Mounted Corps, which took little part in the fighting at this time.[12] Jerusalem was captured by the XX Corps on December 9th,

[11] Of this total 364 were killed and 132 missing.

[12] On Dec. 3 a successful raid was carried out on the left of the line near Jaffa by the 2nd L.H. and N.Z. Mtd. Bdes.—almost the only raid on a large scale on enemy trenches carried out by the mounted troops. The medical arrangements provided for ambulance stretcher-bearers to accompany the raiding party, with relay posts in the advanced trenches, an advanced dressing-station in the support trenches, and sandcarts ½ mile behind the line. Bright moonlight enabled the evacuation to be carried out all night by motor ambulance waggons *viâ* Jaffa to Ramleh, and the wounded, numbering fifty-seven, were all evacuated a distance of nineteen miles in eight hours.

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the 10th Light Horse Regiment on the right flank being the only Australian unit concerned. The Australian Mounted Division receiving station was in the town very shortly after its capture, and, having taken over the French Hospital, treated cases from the XX Corps for a week. The chief feature during the month was the heavy rain, which changed much of the low-lying plains into impassable mud, washed away railways, and held up rations and stores.

After the capture of Jerusalem, to make the position tactically secure, operations—in which the mounted troops had little part—were undertaken to advance the line in front of Jaffa and Jerusalem. The former object was achieved by an operation of December 20th which drove the enemy eight miles north of Jaffa; at the end of December the British line was pushed forward to the north of Jerusalem, and an entrenched position was built up with the XXI Corps on the right and the XX Corps on the left. The Desert Mounted Corps for the most part went into resting areas about Esdud and Richon.

Good health—oranges

Notwithstanding the fatigue and strain of the advance from the Wady Ghuzze and the exposure to the wet and cold now encountered, the health of the troops was extraordinarily good, and in January became even better. This improvement is sufficiently accounted for by the rest in novel and pleasant surroundings and the abundance of oranges and other forms of fresh food. The picturesque Jewish villages, surrounded by their huge orangeries and vineyards, made excellent bivouac areas, and great attention was paid by the inhabitants to the troops, to their mutual advantage.

The total casualties in the three corps during December numbered some 4,300 (including 3,000 wounded); among the mounted troops they were approximately 500.

Special training for malaria

In the field ambulances, training was at once taken up; in particular, in the Anzac Field Laboratory a number of medical officers received instruction in the microscopic diagnosis of malaria in view of the outbreak which was held to be inevitable in this locality as the season advanced. At the A.A.M.C. Training Centre at Moascar training on a larger

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scale was entered upon, a school for medical officers being opened on February 1st. Each course lasted a fortnight, and eighty officers attended in batches of twenty. The object specially held in view was to standardise the methods of all ambulances, Australian and New Zealand, British, and Indian, there being at the time no textbook containing all the information required for efficiency. Much of the method for a mounted field ambulance had been evolved during the campaign. Instruction accordingly was devoted largely to the care of horses and mounted duties essential in a unit in which all personnel were mounted on horses or other animals and moved with the troops.

The military operations with which this chapter has been concerned were peculiarly instructive. As is stated by a lucid and forceful writer:[13]

> it is probable that these operations will become a classic, for they constitute a nearly ideal instance of the proper use of all the arms in combination, and of cavalry in particular.

Summary—work of D.R.S's and operating unit

On the medical side it is of much interest to consider the tactical employment of the medical services operating with the cavalry corps, and also the general question of evacuation in mobile warfare. In particular, the problems of the stage between railhead and the field formations were the subject of interesting experiment in the use of the improvised receiving stations under corps control. Whatever their disadvantages (and there were certainly some), no feasible alternative presented itself. The quality of their medical work was very high: an appreciation of the Anzac Mounted Division receiving station by the D.A.D.M.S. of that division may be quoted as epitomising the story of the other two stations also:—

> During the three crowded weeks which constituted this phase the unit travelled approximately 100 miles over indifferent roads, including many miles of sand, handled over 3,000 sick and wounded, and provided an indispensable link in the chain of evacuation to the nearest casualty clearing station at railhead. It constituted a triumph in improvisation. Loosely and hurriedly combined, with indifferent equipment and transport (having been treated more or less as a dump

[13] See *An outline of the Egyptian and Palestine Campaigns, 1914-1918*, by Major-General Sir M. G. E. Bowman Manifold, *p. 58*.

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by the parent ambulances), with the personnel containing an undue proportion of N.C.O's and specialists, its record of work reflected the greatest credit on its staff.

With mobile casualty clearing stations, receiving stations would have been unnecessary, and their personnel would have been available for use within the divisions; but for an offensive such as this, the casualty clearing station, as then constituted, was too immobile,[14] being dependent on the railway for its transport. It was not till twenty-one days after the opening of the offensive that a casualty clearing station was moved forward to Gaza, then nearly seventy miles from the most distant part of the front line. The other improvised unit, the operating unit, well repaid the trouble and difficulty of its formation. The number of major operations performed was sixty-two. In operations for abdominal wounds performed within from twelve to twenty hours forty per cent of the cases recovered; in those performed after twenty hours there were no recoveries. Two of these units were really necessary for the corps.

"Returning empties"

Evacuation of sick and wounded by returning army service corps transport had not previously been utilised in this campaign; such experience as there was of this method illustrated the fact that, if wounded were to be so transported, the medical unit from which they were to be cleared must be placed close to the supply refilling points.[15]

Experience of divisional units

In connection with the work of divisional medical units a conference of medical administrative officers after the advance came to a general agreement that one immobile section should remain with each division to form the divisional collecting station, thus allowing two for each receiving station, as had been originally proposed. The same meeting reaffirmed the need of providing means of transport for the tent division personnel of the mobile sections. Cacolet camels and two-wheeled sandcarts, it was agreed, could not be entirely replaced by the light ambulance waggons with horses, though these proved

[14] In the post-war reorganisation of the British Army these units are organised in mobile and immobile sections. The problems of the former will in general be those described for the divisional receiving stations.

[15] This matter will be dealt with also in *Vol. II.*

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unexpectedly serviceable. The Ford motor ambulances were a great gain.[16] The difficulties of signal communication, already mentioned in the narrative, emphasised the need of trained signallers in a cavalry field ambulance, equipped with heliographs and lamps for night signalling. As a result of representations, these instruments were added to the equipment, and were of great service during the rest of the campaign.

[16] They were fitted with double wheels (eight wheels per motor) for the sandy and soft country, but reverted to single wheels for the mud.

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CHAPTER IX

OPERATIONS IN AND BEYOND THE JORDAN VALLEY

PART of the Jordan Valley north of the Dead Sea having been occupied, two raids were made, in March and April 1918 respectively, towards Amman on the steep-sided plateau of Moab, east of the river. These operations, in which the mounted troops formed the striking force for the distant objective, failed, and, especially during the withdrawals, were the occasion of the most difficult and dangerous marches undertaken by medical units in the campaign.

* * *

The stay in the victorious progress of the second Palestine offensive was not so much due to any change in the military dominance of the attacking force as to the fact that, facing a reinforced enemy on a new strategic base, it had outrun its own lines of communication and supplies. To meet the desire of the Supreme War Council for a "knock-out blow" to the Turk in Palestine, General Allenby was instructed by the War Cabinet that his plans should be directed to that end, and in February two Indian divisions were ordered to Palestine from Mesopotamia. As a strategic preliminary to a general advance Allenby carried out certain subsidiary operations with the object of securing his right flank and advancing it clear of the Dead Sea by the occupation of the Jordan Valley, as well as of isolating the Turkish force at Medina by an attack on the Hejaz railway. Besides their direct results, both these operations would have the desired effect of turning the attention of the enemy to the openings on his left flank, and especially to the possibility that Deraa might be the objective in a British general advance.

Occupation of Jordan Valley —Feb. 19–21

The first step in these various moves involved the capture of Jericho and of sufficient space to the north to ensure its safety as a base for trans-Jordan operations. This was carried out on February 19th-21st by the 60th (London) and the Anzac Mounted Divisions, the operations being under the direction of the XX Corps. The infantry made the main

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attack against the enemy positions in the hills on the west border of the Jordan Valley: the light horse moved through difficult hilly country farther east and south in a flanking movement directed on Nebi Musa, the site of a large mosque and the reputed burial-place of Moses. The light horse was for a time held up, but after the capture of their objectives by the infantry the enemy evacuated Nebi Musa on the 20th and retired across the Jordan. The Anzac Mounted Division occupied Jericho next day, after little fighting.

Action of medical units

In these operations, leaving their pleasant bivouac area round Richon, the 1st Light Horse and New Zealand Mounted Field Ambulances, with the Anzac Mounted Division, marched on February 18th to Bethlehem, where each unit took over twenty cacolet and six baggage camels, lent by the XX Corps. In the approach march the bearer divisions with all camels accompanied their brigades, but the route taken was impassable for wheels and the transport vehicles followed later by the main Jerusalem-Jericho road. That traversed by the mobile sections was merely a bridle track, steep and rough, in some places leading across the face of precipitous hills, down narrow wadys, or along "razorbacks" with a precipice on either side. Horses and camels were led in single file; in the more dangerous parts it was necessary to move the wounded from the cacolets and carry them by hand.

In Jericho were found a few Turkish wounded and ten with typhus fever. All were in the neglected state of starvation and dirt usually met with in abandoned Turkish hospitals. The typhus cases were in the basement of the Jordan Hotel, left to fend for themselves, and with their food passed to them through the windows. They were removed to a Russian hospice, while the wounded were taken to a Russian church, the only other clean building in this squalid and dilapidated town. On the 22nd all were evacuated by motor ambulance waggons to casualty clearing stations at Jerusalem: on the same day the Anzac Mounted Division returned to Richon, leaving one regiment in the Jordan Valley. The

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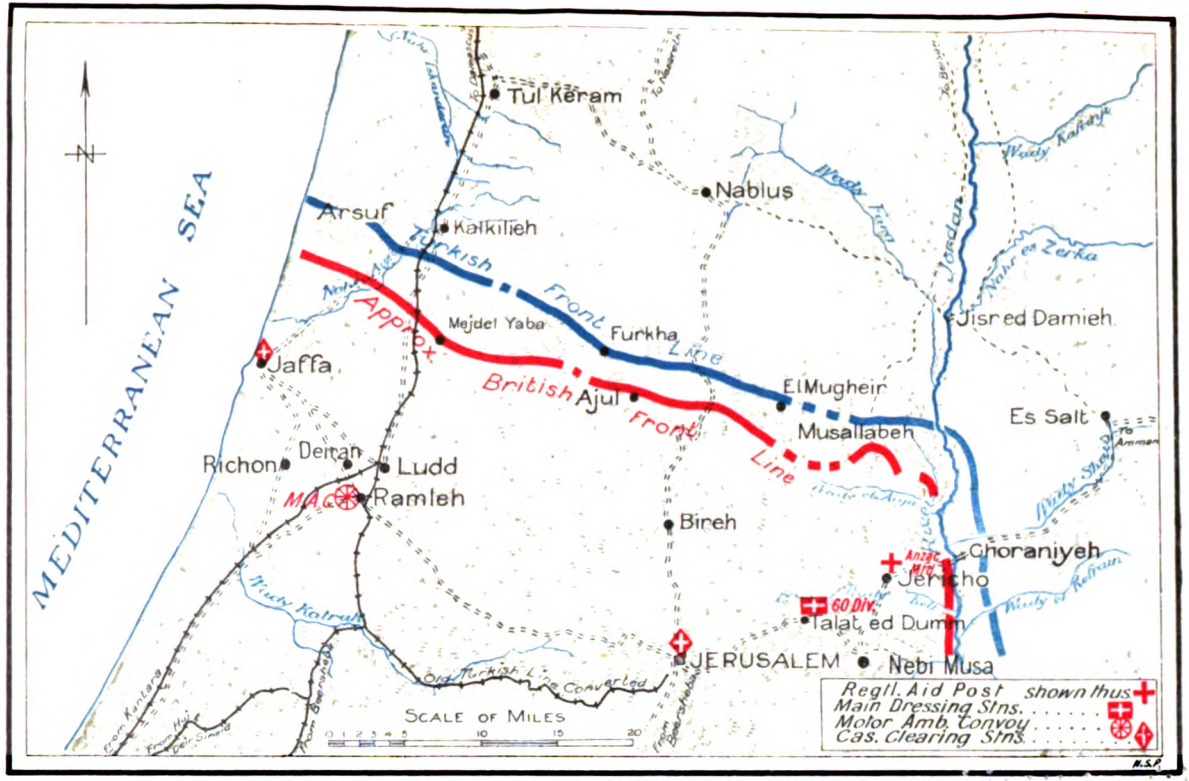

THE MEDICAL SITUATION IN FEBRUARY 1918 AFTER THE CAPTURE OF JERICHO.

Map No. 19

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British line was soon afterwards advanced to the Wady Auja, while the Turks held the east bank of the River Jordan and maintained a bridge-head at Ghoraniyeh.

By this time the British advanced base of operations had shifted from Deir el Belah to the new railhead in the vicinity of Ludd. General Headquarters, and with it the D.M.S., E.E.F., moved to Ramleh; the headquarters of the Motor Ambulance Convoy to Junction Station. Thirteen casualty clearing stations and stationary hospitals were by now established along the course of the lines of communication, from Jaffa and Jerusalem to Kantara, whither, by March, ambulance trains ran from Ludd.

The second move in Allenby's plan involved the light horse in their most difficult and unsatisfactory operations in the campaign. During these the regimental medical establishments and bearer divisions of the light horse field ambulances were faced with situations as difficult, and experiences as trying, as a medical service is ever likely to meet in collecting the wounded from a raid on a large scale in enemy territory and transporting them to safety.

The First Amman Raid.

The first trans-Jordan raid, now to be described, was directed against a viaduct and tunnel at Amman, on the main strategic railway through Eastern Syria, which formed the Turk's line of communication with his forces in the Hejaz.[1]

Amman (the ancient Philadelphia, which possessed a Roman amphitheatre still well preserved) lies in the hills of Moab on the railway from Damascus to the Hejaz, about sixty miles to the east of Jerusalem. In marching from Jerusalem a descent of some 3,400 feet is first made down the eastern slope of the Judæan hills to the Jericho plain, which lies from 900 to 1,280 feet below sea level. A winding road, steep in parts, but well graded and with a good surface, covered this stretch of twenty miles to Jericho. In places it had been destroyed by the Turks in their retreat, but had been repaired by the British Engineers. For the last few miles a deviation

[1] That is, the strip of country along the west shore of the Red Sea, where, directed by a few British officers, in particular Lieut.-Col. T. E. Lawrence, a somewhat desultory but peculiarly interesting war was being waged with their hereditary enemy the Turk by Emir Feisal, and a semi-organised army of Arabs.

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had been made by the Turks during the war to eliminate a very steep descent in the last portion of the ancient Roman road to Jericho. Crossing the western side of the soft loamy scrub-covered plain, the road gradually descends till, at a distance of seven miles from the edge of the Judæan hills, the Jordan is met. On the eastern side of the river a track led from the Ghoraniyeh crossing across the plain for six miles to Shunet Nimrin, at the foot of the hills of Moab. Thence, along the side of the wild hills bordering the Wady Shaib, a road began to climb in a north-easterly direction to the town of Es Salt, a distance of eleven miles. Es Salt—the biblical Ramoth Gilead—situated 2,050 feet above sea level, had a number of good stone buildings and a mixed population of about 15,000, comprising Arabs, Christians, Turks, and Circassians. From it, at first easterly and then south-easterly across a great plateau, there runs for eighteen miles to Amman (3,000 ft.) a road which was metalled for a few miles beyond Es Salt but from that point became unfit for motors in wet weather. The only bridge across the Jordan, at Ghoraniyeh, had been destroyed.

After several days' delay on account of heavy rains which had caused a considerable rise in the Jordan, a passage was forced across the river, the enemy was driven away from its eastern bank, and sufficient bridges were formed to allow of the raiding force on March 24th being concentrated on the east of the river. That force consisted of the Anzac Mounted Division, with the Imperial Camel Corps Brigade attached, and the 60th Infantry Division.

Medical arrangements

With the brigades went the mobile sections of the ambulances, but their waggons and sandcarts were all collected together near Jericho to follow on when circumstances should permit. Pack-camels were used to carry the equipment, since the tracks to be traversed were expected to be impassable for wheels. The regimental medical equipment was carried on packhorses. Thirty-five cacolet camels were allotted to each ambulance for the raid. The motor ambulances, with the horsed ambulance waggons, were parked under the D.A.D.M.S., Anzac Mounted Division, near Jericho, to be used between the Anzac Mounted Division receiving

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station,[2] which was to be opened in the first stage of the operations at Ghoraniyeh, and a main dressing-station (infantry) at the foot of the old road west of Jericho. The main dressing-station consisted of the tent divisions of two field ambulances of the 60th Division. Attached to it were the Desert Mounted Corps Operating Unit and the Consulting Surgeon to the E.E.F. (Lieutenant-Colonel H. Wade, R.A.M.C.). In rear of this were two casualty clearing stations in good buildings in Jerusalem.

The advance

The position held by the enemy at Shunet Nimrin having been taken by the 60th Division and New Zealand Mounted Rifles Brigade on the 24th, the main road was now open, and by nightfall the infantry was four miles beyond Shunet Nimrin on the road to Es Salt. Half a mile beyond Shunet Nimrin there is a path leading to the main road to Ain es Sir (a Circassian village) and eventually to Amman. This direct route was followed by the New Zealand Brigade and ambulance: the 1st Light Horse Brigade with attached ambulance advanced a little up the plain to the north to protect the left flank, while the 2nd Light Horse and Camel Brigades with their ambulances followed another road, which passed some three miles south of Shunet Nimrin to the village of Naaur. It was soon discovered by the light horse formations that the roads marked on the maps were largely the beds of wadys, and, as it was raining heavily, these rapidly became converted into muddy streams. Consequently it became necessary to send back to Shunet Nimrin the ambulance waggons and sandcarts which had joined their units; instead they were now to follow by the road through Es Salt as soon as it should be open. The march was continued through the night and was certainly one of the most difficult undertaken by any ambulance in the campaign. Of the two routes, the southern was the more trying. It was raining hard and bitterly cold. The grade was steep—4,300 feet in sixteen miles—nearly all the climb being in the last ten miles. The tracks, which in many places ran along the sides of steep hills, were rocky and slippery, and wide enough only for horses to march in single

A trying march

[2] The Anzac Mtd. Div. receiving station consisted of only one immobile section, the others being employed at railhead, at Ramleh, to receive patients from the casualty clearing station at Jaffa in front of them.

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file. The camels (which are miserable under such conditions) had to be pulled and pushed along the tracks. They frequently fell, and a number, with their equipment, went over the edges of the cliffs and were killed. It was not till 6 p.m. on the 25th that the ambulances, with camels and men exhausted, reached Ain el Hekr on the edge of the plateau, having taken twenty-four hours to cover ten miles.

March 25–26

After another very cold night-march in heavy rain and deep and slippery mud, the brigades arrived at Ain es Sir and remained close to this village for twenty-four hours to recover from their exhaustion. Es Salt was occupied by the 1st Light Horse Brigade and infantry at about the same time. The attack on Amman was begun on the 27th. The long delay caused by the rain and the state of the country had given the enemy ample warning of our intentions, and foredoomed the attempt to failure. A stubborn fight was carried on throughout the day by the Anzac Mounted Division, supported by three mountain batteries, and small gains were made; but in general the enemy was able to hold up the attack.

March 27—the attack

Regimental aid-posts, to which wounded were carried on light stretchers or blankets, were established about half-a-mile in rear of the attacking regiments. Advanced dressing-stations were established about three miles to their rear, and the return journey to and from these, made in sandcarts, occupied from three to six hours. A divisional collecting station was established six miles farther back at Birket umm Amud. The country was so heavy and rough between it and the advanced dressing-stations that wounded who were unable to ride could only be evacuated on cacolet camels. As the return journey over this stage occupied six or seven hours, other dressing-stations were established on the way, where wounds were re-dressed if necessary. As no satisfactory contrivance had been evolved to make the camel cacolets suitable for patients with fractured thighs treated by means of Thomas splints, the latter were not applied till the divisional collecting station was reached; treatment of the shock caused by the long rough trip was also carried out there.

Evacuation difficult

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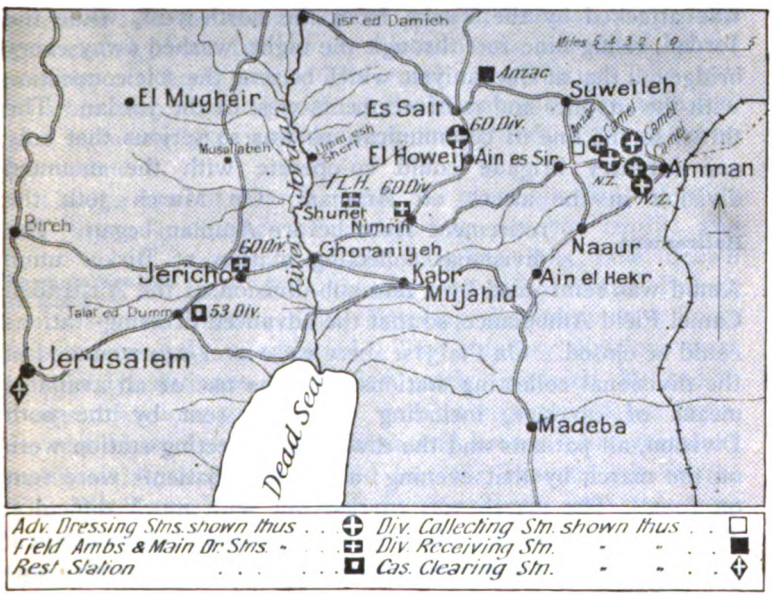
To the rear of the divisional collecting station the road, though soft and boggy, was just passable for wheeled transport, and evacuation was continued through Suweileh and Es Salt to an infantry advanced dressing-station at El Howeij, five miles in rear of Es Salt, until the Anzac Mounted Division receiving station opened two miles east of Es Salt. The time occupied by the vehicles[3] for this part of the journey, including their return and a period for resting and feeding the



horses, was thirty-four hours in the case of the sandcarts and forty hours for ambulance waggons. The remainder of the journey to the main dressing-station and operating unit near Jericho (twenty miles) was covered by motor ambulances. Hence the time spent in actual travelling to Jericho from the spot where a man was wounded was about twenty-four hours for the forty-five miles. To this must be added a further three hours before the cases reached the casualty clearing stations at Jerusalem.

[3] These had rejoined their units after Es Salt was occupied.

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The attack on the Amman position was continued on the 28th, 29th, and 30th. The enemy being steadily reinforced through the unharmed railway from the north, the position gradually changed, and it was the enemy who was attacking while the British were with difficulty defending themselves. By this time the operation had become hazardous. The only road by which the force could retire without abandoning all wheeled vehicles, including guns, was the devious one through Es Salt. On the 29th Es Salt was attacked by the Turks from the north-west, while the Jordan, rising nine feet through the night, washed away every bridge but that at Ghoraniyeh, which became the sole connection with the supplies and reinforcements west of the Jordan. The threat to the line of communications was so serious that only one infantry brigade could co-operate with the mounted division in the attack on Amman. On March 30th the retirement from before Amman began. The divisional collecting station at Birket umm Amud was reinforced by a tent sub-division of the Australian Camel Field Ambulance, so that the advanced dressing-stations could be closed. On the 31st there were over 240 wounded in the divisional collecting stations. By the use of all available means of carriage, including sandcarts sent by the 60th Division, all patients and the divisional collecting station were on the march by that evening; about fifty patients were sent on foot. The march was carried out with much difficulty. Throughout almost the whole raid the rain and cold continued, and the road was thoroughly soft and boggy. Progress was slow, since the camels were in a very exhausted condition and were continually falling. The last convoy of wounded, which left at the same time as the divisional collecting station, found, bogged and exhausted at Suweileh, twenty camels carrying wounded; these had begun the journey six hours earlier in the day. Nine of them being still unable to move, some ambulance personnel was left to attend to the wounded. This work they did throughout the night, assisted by the villagers. At daylight a handful of light horse warned them to move on, as the Turkish cavalry was close by. Five of the camels were able to proceed, but the remaining four

March 28–30

Retirement

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were too exhausted. By this time the enemy had opened fire on the party. Of the eight wounded, six were placed on horses, but two, who appeared to be mortally wounded, were left behind when the enemy got between the covering party and the ambulance men. In the end all escaped but the two above mentioned and three men of the 2nd Light Horse Field Ambulance. The latter, who were mounted on donkeys and so had little chance of avoiding capture, were taken prisoners; two of them died while prisoners of war.

After this the evacuation of wounded across the Jordan continued without further trouble and was completed by the evening of April 2nd. The total casualties of the two divisions were about 1,200: of the Anzac Mounted Division, 724, including 551 wounded; of the British, 476, including 347 wounded.

Re-organisation of E.E.F.

On the 21st of March, 1918, the great German offensive was begun in France: America was not yet ready: and every available battalion was now drawn into the supreme struggle on the French front. The Egyptian Expeditionary Force was consequently reorganised. Two infantry divisions were completely, and the remainder partly, replaced by Indian troops, of whom 50 per cent. were raw recruits from India, the rest drawn from Mesopotamia and France. Six yeomanry regiments were disbanded and left for France; but on the other hand two new cavalry divisions (4th and 5th) were formed, each composed of three brigades, and each of these again containing one British and two Indian regiments. The British mounted field ambulances remained, but were changed by the inclusion of Indian personnel, forming what was known as "combined cavalry field ambulances." The Australian and New Zealand formations were only slightly affected by this reorganisation. The Anzac Mounted Division remained unchanged: in the Australian Mounted Division the 5th (British) Mounted Brigade was withdrawn, its place being taken by the Australian companies of the Imperial Camel Corps Brigade, which became the 5th Light Horse Brigade. The Australian Camel Field Ambulance became the 5th Light Horse Field Ambulance. The training of these

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new troops, welding of the new units into a fighting machine, and general preparations for a great move, called for the closest attention. Meanwhile a second trans-Jordan raid was undertaken by General Allenby.

The Second Amman Raid.

The chief object of this considerable operation was the strategic one of impressing on the Turk the idea that the British Commander-in-Chief was aiming at the railway junction at Deraa. Important tactical objects were, however, also involved, such as the capture of a large body of enemy troops entrenched at Shunet Nimrin. The possibility of exploiting such success by extending the British line to the Moabite hills offered a prospect of escape from a summer in the Jordan Valley.

The preparations for this raid, which was under the direction of the Desert Mounted Corps, were hasty and imperfect, the reason being that, after the move had been planned for the middle of May, it was decided to carry it out at an earlier date, since a strong Arab tribe which was expected to give important aid during the operation had sent information that sufficient supplies remained only for its maintenance till May 4th. The troops were in consequence concentrated hastily from places more than 100 miles apart.

The formations engaged were the whole of the Anzac and Australian Mounted Divisions, two brigades of the 60th Division, the Imperial Camel Corps, the 6th Cavalry and Imperial Service Cavalry Brigades (the latter consisting of three Indian regiments), the 20th Indian Infantry Brigade, and a siege and a heavy battery of the Royal Garrison Artillery.

Medical units

Medical units of the Australian and New Zealand mounted formations were complete in personnel, but all were considerably under strength both in camels[4] and in cacolets (the only form of transport suitable for operations in the hills): the camels, lent by the XX Corps, kept on arriving daily until the operations were

[4] In Dec., 1917, by order of G.H.Q., E.E.F., the transport camels allotted to the mounted field ambulance were greatly reduced. As a result of the experiences described in this chapter the order was rescinded.

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over. The immobile sections of the 1st and 2nd Light Horse Field Ambulances did not arrive until the third day of the action. The ambulances attached to the Indian brigades were very weak—till the second day each had one officer only—and their transport consisted of a few sandcarts and miscellaneous vehicles. They had never been in action.

Plan of the raid

The plan of operations aimed, as ultimate objective, at the seizure and retention of Amman and the railway, and of Es Salt; the primary objective was an enemy force entrenched on a line north and south in front of Shunet Nimrin, whose only communication with the main enemy forces was by two roads, namely, that from Es Salt and the track through Ain es Sir which had been followed by the New Zealanders in the first raid, but subsequently much improved. In the first phase Shunet Nimrin was to be attacked by the 60th Division, while the Australian Mounted Division, with a brigade of the Anzac Mounted Division, would make a dash northwards, seize the crossing at Jisr ed Damieh, and, turning into the hills, capture Es Salt. The Arab auxiliaries were to hold the Ain es Sir track. West of the Jordan the Imperial Camel Corps was to act as a flank guard.

Medical plans

Medical arrangements by the D.D.M.S., Desert Mounted Corps, centered on an infantry corps main dressing-station which was located to the west of Jericho and was formed by two tent sub-divisions of the 2/4th London Field Ambulance, together with a section of the 121st Indian Field Ambulance for wounded Indians. Attached to it were the Desert Mounted Corps Operating Unit and an operating team from the Citadel Hospital, Cairo, together with the consulting surgeon for the force, and two "malarial diagnosis stations." This would serve the troops engaged both west and east of the Jordan. Evacuation thence to casualty clearing stations would be by motor ambulance waggons. Mobile sections of field ambulances were organised to carry as much equipment as possible on packhorses, and a number of ambulance bearers were allotted to each regiment.

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The attack was launched on the morning of April 30th, after the Jordan had been crossed by the Ghoraniyeh bridge.

April 30—attack launched

The infantry advanced against Shunet Nimrin, but made little progress. The 3rd and 4th Light Horse Brigades, advancing rapidly up the eastern valley of the Jordan, met with but little opposition till the Jisr ed Damieh bridge-head was reached. There the enemy position being found strong, the 4th Light Horse Brigade formed a line facing it, while the 3rd Light Horse Brigade advanced up a very steep track to Es Salt, which it captured by evening. The 5th Mounted Brigade (British and Indian) moved by the Umm esh Shert-Es Salt track to Es Salt, followed by the 2nd Light Horse Brigade and later by the 1st; the last-named remained across the track to guard it.

A divisional receiving station was established by the Anzac Mounted Division within the bridge-head at Ghoraniyeh, the Australian Mounted Division receiving station being held in reserve alongside it to move up the main Es Salt road when Shunet Nimrin should be taken. For the stage thence of six miles to the main dressing-station the motor ambulance waggons of the 1st Mounted (later 4th Cavalry) Division were used, this formation not being yet ready for the field. A divisional collecting station was formed by the Australian Mounted Division two miles east of the Jordan on the Umm esh Shert-Es Salt track. Following in rear of their brigades, the 3rd and 4th Light Horse Field Ambulances were heavily shelled on the Jisr ed Damieh-Es Salt track. The 4th then formed an advanced dressing-station about three miles north of the Umm esh Shert track, to serve both 3rd and 4th Light Horse Brigades, while the 3rd, having sent its wheeled transport back to Ghoraniyeh bridge-head, made the ascent through the hills by the Jisr ed Damieh-Es Salt track—little more than a goat-track running along the edges of very steep cliffs and in parts very slippery. Previously, indeed, it would have been thought impossible for camels to make such a passage, and in places horses had to be led. At 8 p.m. a halt was made for the night in a wady four miles east of Es Salt.

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The 5th Mounted Field Ambulance followed its brigade up the Umm esh Shert track, both vehicles and camels being left at the foot of the hills two miles east of the divisional collecting station.[5] The 1st and 2nd Light Horse Field Ambulances accompanied their brigades. The 2nd, with nine of its cacolet camels, reached Es Salt; the 1st, without any transport animals, remained with its brigade three and a half miles down the Es Salt-Umm esh Shert track.

Thus, for wounded from the five brigades around Es Salt, the transport consisted of the twenty-nine cacolet camels of the 2nd and 3rd Light Horse Field Ambulances, but was augmented by the capture of a German motor ambulance waggon (the driver of which worked excellently) and a number of captured motor-cars and waggons.

Clearance

The first casualties, from the infantry,[6] arrived at the divisional receiving station three hours after the fighting began: two hours later they were at the corps main dressing-station, and later in the day they reached the casualty clearing station at Jerusalem. For the stage from the corps main dressing-station to Jerusalem twenty-eight heavy and ten Ford motor ambulance waggons were available, the return trip taking seven hours. Use was also made of returning motor lorries of the army service corps. By evening 409 cases had been admitted to the Anzac Mounted Division receiving station, and evacuation was going on smoothly. To keep the station clear of casualties, on the following day the motor lorries, general service waggons, and some of the light motor ambulances that had been brought inside the bridge-head were used to supplement the heavy cars.

On the following day, while the infantry made little progress against the enemy at Shunet Nimrin, who was reinforced down the Umm esh Shert track which the Arab force had failed to block, the 4th Light Horse Brigade, holding the Jisr ed Damieh crossing, was driven back into the hills by a strong enemy

May 1

[5] The camels, together with those of the light horse field ambulance, were afterwards sent back to bridge-head.

[6] For the collection of their wounded in the attack on Shunet Nimrin the 60th Division formed three advanced dressing-stations in front of the divisional receiving station.

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attack from Jisr ed Damieh, and from Mafid Jozele, where, unobserved, he had constructed a pontoon bridge. In the retirement ten guns were cut off and captured by the enemy, as were also four ambulance waggons, a general service waggon, a water-cart, and horses and personnel of the 4th Light Horse Field Ambulance. This transport was at once replaced by that of the 5th Mounted Field Ambulance.

The Australian Mounted Division collecting station, which had been placed under the orders of the A.D.M.S., Anzac Mounted Division, was now withdrawn to the Wady Abu Muhair at the junction with the main road. During the day the Anzac Mounted Division receiving station admitted 372 more cases, all of whom were cleared by evening.

May 2

On May 2nd the fighting became very involved. While the 60th Division kept up pressure against Shunet Nimrin from the west—though without much avail—the 2nd Light Horse and 5th Mounted Brigades attacked that position from the rear down the road from Es Salt. But at the same time the enemy, advancing from Jisr ed Damieh, was strongly attacking Es Salt from the north and north-west, and his reinforcements for Shunet Nimrin from the Ain es Sir road continued. Later in the day another enemy force from Amman made its appearance at Es Salt, and, to hold up this threat to Es Salt from the east, two regiments of the 2nd Light Horse Brigade were withdrawn from the attack on the rear of Shunet Nimrin. By the evening the attack by the mounted troops on Shunet Nimrin had definitely failed, and at the same time Es Salt was being assailed by the enemy from the south-east, north, and north-west.

Situation becomes precarious

The situation of the Australian Mounted Division at Es Salt—now consisting of the 2nd and 3rd Light Horse and 5th Mounted Brigades—was becoming serious. Its only outlet back from the town was over the very rough and precipitous Es Salt-Umm esh Shert track. This vital path was held against the attacking enemy by the New Zealand Mounted and 4th Light Horse Brigades and a regiment of the 6th Mounted

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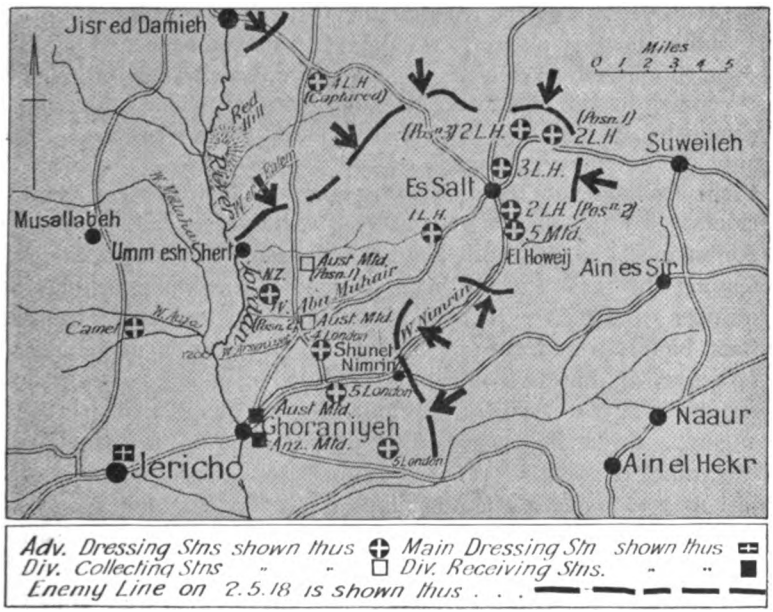
Brigade along the line of the Wady er Ratem from the Jordan to the hills, and by the 1st Light Horse Brigade in the hills. Its loss would have entailed the capture of the division. In the meantime the ambulances in Es Salt were becoming short of dressings, anti-tetanic serum, chloroform, sutures, and medical comforts. A stock of these was sent out on a donkey ammunition convoy, and by very fine handling it made the ascent of the Umm esh Shert pass in the dark and arrived



The second trans-Jordan raid, 2nd May, 1918

at Es Salt next morning; a duplicate supply was sent by aeroplane.[1] The same night (May 2nd) the third brigade of the 60th Division was sent down in motor lorries from Jerusalem. As

Medical stores by aeroplane

[1] It was known that these supplies could only be dropped from the aeroplane, and, as Es Salt was in a basin, the drop would be about 1,000 feet. No experiment had previously been made in Palestine to determine in what manner they could be packed so as to avoid breakage when dropped. It was thought that they would be best wrapped in motor tubes, but none could be obtained quickly enough. Accordingly the method adopted was that which had been employed in the siege

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its field ambulance was consequently without transport, the vehicles of the 6th Mounted Field Ambulance, which had not so far been engaged, were attached to it. In addition a casualty clearing station was put under orders for attachment to the corps for the final massed attack on Amman planned for the 3rd.

May 3—withdrawal

By the afternoon of the 3rd, however, the enemy pressure had increased greatly in all directions and the position of the troops around Es Salt became so critical that the force was withdrawn.

Only forty-two slight casualties had as yet been evacuated —on horseback—from Es Salt, but a considerable number remained in the advanced dressing-station, which had been established in a Greek church. For these there were available only the twenty-nine camels of the 2nd and 3rd Light Horse Field Ambulances, together with horses which had lost their riders. By 6 p.m. the camels of the 2nd Light Horse Field Ambulance had left with all the light cases they could carry, leaving the serious cases behind, since it was thought that a number of these, with medical personnel to look after them, must be left for capture by the enemy. By good management, however, all but two mortally wounded men were mounted, though a great deal of equipment was abandoned to the enemy. Under heavy but wild rifle fire from the townspeople the camel cacolets of the 3rd Light Horse Field Ambulance left at 7.30 p.m. on their perilous trip of twenty miles down the hills in the dark, closely followed by the personnel of the advanced dressing-station.

A perilous descent

The ascent of the Jisr ed Damieh track had been difficult enough, but the difficulty was not to be compared with that of their descent of the Umm esh Shert track in the dark and loaded with wounded. It was probably the most remarkable exploit of any medical unit in the campaign. One camel with its two patients fell over a cliff, but the patients were rescued. Other burden camels fell over precipices and were killed. The last

of Kut-el Amara. The materials were placed in a loosely filled sandbag, bottles being well packed in cotton wool in addition; this was enclosed in a second sandbag. Forty pounds of dressings were prepared at Jerusalem, whence the aeroplane started. All were received intact at Es Salt with the exception of plaids and bottles, the whole of which were broken.

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99. THE JORDAN VALLEY AND FOOT-HILLS

Jericho may be seen in the middle distance, and the Jordan Valley and Mountains of Moab in the background.

Aust. War Memorial Official Photo. No. B1622.

To face p. 694.

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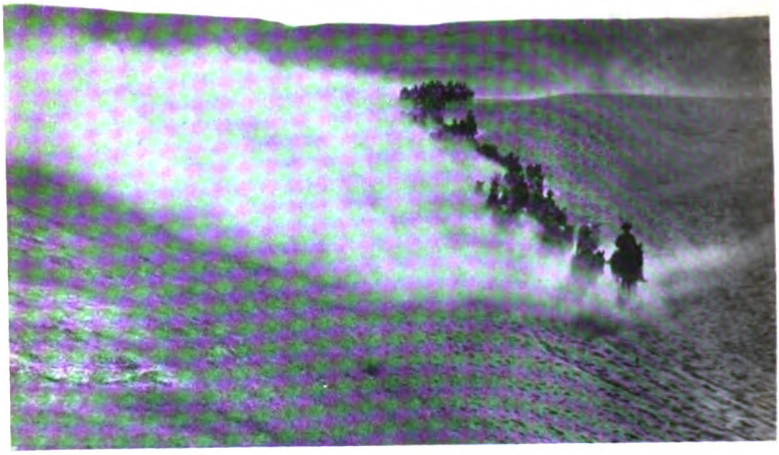
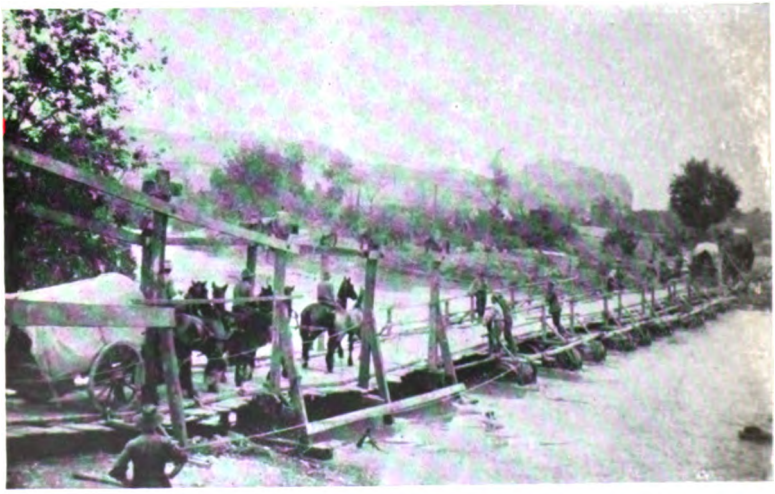


100. DUST IN THE JORDAN VALLEY

Aust. War Memorial Official Photo. No. B32.



101. A LIGHT HORSE FIELD AMBULANCE CROSSING A BARREL BRIDGE AT GHORANIYEH

Lent by Lieut.-Colonel M. W. Cave, A.A.M.C.
Aust. War Memorial Collection No. B2640.

To face p. 695.

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part of the convoy to leave Es Salt, reaching in the dark a fork in the track, was unable to use lights in order to determine which branch to follow, and had to be guided by feeling with the hands in order to discover which was the more cut up by the traffic ahead. Camels were led over places which would previously have been thought impassable for them. Towards morning they showed signs of exhaustion and could be urged forward only with the greatest difficulty. The night was bitterly cold. The last slope—reached soon after daylight —was under view of the enemy and was vigorously shelled. On reaching the plain and cover two men were found dead in the cacolets. The convoy proceeded to the Australian Mounted Division collecting station on the Wady Abu Muhair, and, after being fed, the wounded were taken by ambulance waggons to the Anzac Mounted Division receiving station.

D.R.S. and dressing-station

This unit consisted till May 3rd of the immobile sections of the New Zealand Mounted Field Ambulance only; but on that morning the immobile sections of the 1st and 2nd Light Horse Field Ambulances arrived from the reserve area. Evacuation from this station to the main dressing-station and subsequently to the casualty clearing station had been made very effective by additional motor ambulance waggons from the 1st (British) Mounted Division and the XX Corps. At the main dressing-station prompt and very effective surgical treatment was made possible by the presence throughout of three operating teams, which performed seventy-eight major operations.

The total number of evacuations during these operations was 1,784, of whom 1,076 (including 310 from the mounted brigades) were wounded and 708 sick.

Plans for future

From the military point of view, this remarkable raid, though tactically a failure, served a strategic purpose of great importance by holding east of the Jordan quite one-third of the whole Turkish force. But from the medical side the failure to retain a hold on the eastern extremity of the Jordan Valley and the hills of Moab condemned the mounted troops to a summer in the Jordan Valley.

During May a strategical plan was drafted by Allenby's general staff, which had as its purpose the destruction of the

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whole Turkish Army in Palestine, but the reorganisation of the Egyptian Expeditionary Force mentioned earlier in this chapter compelled postponement of offensive operations. The fact, however, that the wet season in Palestine begins in November and lasts till May made it necessary that the campaign should be completed by the end of October. The middle of September was therefore decided upon for the opening move. During this period—May till September—intense training was in progress. Apart from this, preparations were concerned chiefly with the improvement of communications with the base, accumulation of supplies, and the organising of defence for the future lines of communication. The port of Jaffa was improved, and the landing of supplies there much accelerated. Ludd became an immense supply and ordnance area, with Rafa as an intermediate base. Water supplies were improved where necessary, and extensive pipe-lines were laid down to facilitate the rapid concentration of troops.

Medical dispositions

In the medical service also the situation was developed to meet the requirements of extensive operations. By August casualty clearing stations were thus distributed:—at Ludd, two British and two Indian; at Jaffa, one combined clearing hospital for British and Indians; at Jerusalem, one British casualty clearing station and two combined clearing hospitals. Two advanced dépôts of medical stores were situated at Ludd and one at Jerusalem. On the lines of communication between Ludd and Kantara accommodation in stationary and general hospitals was gradually built up, to provide ultimately for 10,000 British and 5,000 Indian sick and wounded.

During the period of preparation D.D'sM.S. of corps were by order of the D.M.S., E.E.F., made responsible for the evacuation of all casualties from their respective areas to casualty clearing stations. An Inspector of Lines of Communication controlled evacuation from casualty clearing stations, and an A.D.M.S. controlled hospital trains. The D.M.S., E.E.F., retained control of the Motor Ambulance Convoy, from which cars were distributed to D.D'sM.S. and A.D.M.S., L. of C.

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The interval in Jordan Valley

The four months that intervened between the second trans-Jordan raid and the final advance were occupied by the Desert Mounted Corps in holding and strengthening the defences in the Jordan Valley. No further attempt was made to gain new ground, but frequent offensive patrols were carried out which served to enhance the morale of the cavalry and depress that of the enemy.[8] But the outstanding feature of this phase of the campaign—April to September, 1918—only less than the military preparations themselves, was the efforts of the medical service to maintain the health of the troops. The XX Corps in the Judæan hills between the Jordan and the coastal plain had little to contend with beyond the summer heat. But in the XXI Corps on the coastal plain, and still more in the mounted divisions in the Jordan Valley 1,200 feet below sea level, the medical service had to meet the effects of a prolonged residence in one of the most malarious districts in the world, while the Desert Mounted Corps had in addition to face a combination of physical conditions which gave to this period of Australian military service in Palestine a special character of sufficient significance to call for a separate chapter.

[8] Enemy activity was shown chiefly in the shelling of back areas, but on July 14 a determined attempt was made by a German force, very ineffectively backed by the Turks, to drive out the light horse in the region of Musallabeh. The attack completely failed, with the capture of most of the Germans. The casualties were small and were comfortably handled by the field ambulances of the Anzac Mtd. Div., with the assistance of extra motor ambulance waggons from the D.M.S., E.E.F. Evacuation was carried through to the C.C.S. at Jerusalem, which was now the base of clearance for the mounted divisions in the Jordan Valley.

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CHAPTER X

SUMMER IN THE JORDAN VALLEY

THE interval of comparative quiet preceding the final offensive in Palestine was spent by the Desert Mounted Corps in the Jordan Valley. The conditions were depressing in the extreme, but the period was chiefly remarkable for the intense campaign against malaria, the greatest effort in prevention of disease undertaken by the medical service in Palestine.

* * *

The conditions under which the Australian light horsemen lived during their periods of duty in the Jordan Valley were the most trying that they experienced at any time in the campaign. Three factors made for great discomfort, namely, heat, dust, and mosquitoes: in the last was contained also a menace to health, fraught with the gravest possibilities. This was malaria. In the British military *Handbook to Palestine and Syria* it was stated that no European had passed a summer in the Jordan Valley. Though this was hardly correct — since a settlement of Greek monks had lived near Jericho for many years—the unenviable reputation earned by the valley for malaria and heat was not unmerited.

The actual information available as to the climate when, at the beginning of summer, the Desert Mounted Corps took over control of this area was meagre. It was said that all natives able to do so left Jericho and its neighbourhood during the summer months: but this migration was probably more on account of malaria than of the heat *per se*. The southern end of the Jordan Valley was known to be hottest, the heat

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increasing with the depth below sea level, which at Rujm el Bahr, at the head of the Dead Sea, is 1,280 feet. Here, it was stated, the maximum shade temperature might reach 122 degrees Fahrenheit, while at Kasr Hajla (two miles north of the Dead Sea) the mean maximum shade temperature in summer was said to be 110 degrees.

The heat

Either the summer of 1918 was less severe than usual or, more probably, previous observations were inaccurate. In May the Anzac Field Laboratory was established one and a half miles north-west of Jericho at the foot of the hills,[1] and here, from the end of May till the beginning of November, exact daily records were kept.[2] The highest shade temperature actually recorded was 114 degrees on June 14th. On only four other days did it reach 110 degrees, and the total number of days on which it rose to 100 degrees or higher was eighty-eight. The graph, however, shows the high average maximum and mean dry-bulb shade temperatures.[3] The highest wet-bulb temperature recorded was 83 degrees, and it remained constantly on a high level: the registrations at 8 a.m. averaged from 70 to 78 degrees, at 2 p.m. from 72.5 to 78.5, and at 8 p.m. from 69 to 74.5. Records of sun temperature are not available but are remembered to have been very high. Readings taken at Rujm el Bahr during August showed dry-bulb temperatures two to four degrees lower, wet-bulb ten degrees higher, reaching 88 degrees and rarely falling below 80 between 8 a.m. and 8 p.m. Readings at Ghoraniyeh bridge-head differed little from those at the laboratory, and at corps headquarters at Meshrab, 1,700 feet above the Dead Sea, were only five degrees lower. The heat in the sun under which the troops

[1] At this time three field laboratories were working in Palestine, the Anzac near Jericho, No. 3 Military Laboratory at Jerusalem, and No. 2 at Ludd. There were also six "malarial diagnosis stations" at work. The personnel of each such station consisted of a specially trained medical officer, and two orderlies, who were also trained in malarial diagnosis. The essential equipment consisted of two microscopes and the necessary technical material, particularly stains. A general service waggon with four horses was provided for their movement. They were employed as near to the forward troops as possible.

[2] True shade temperatures were recorded, a standard shade-box being used and thermometers checked by psychrometer.

[3] The mean dry-bulb temperatures on the Mesopotamia lines of communication for the same months were 80, 92, 97, 96, 88, 75, 68 degrees. The average daily maximum for July was 122.2 degrees F.

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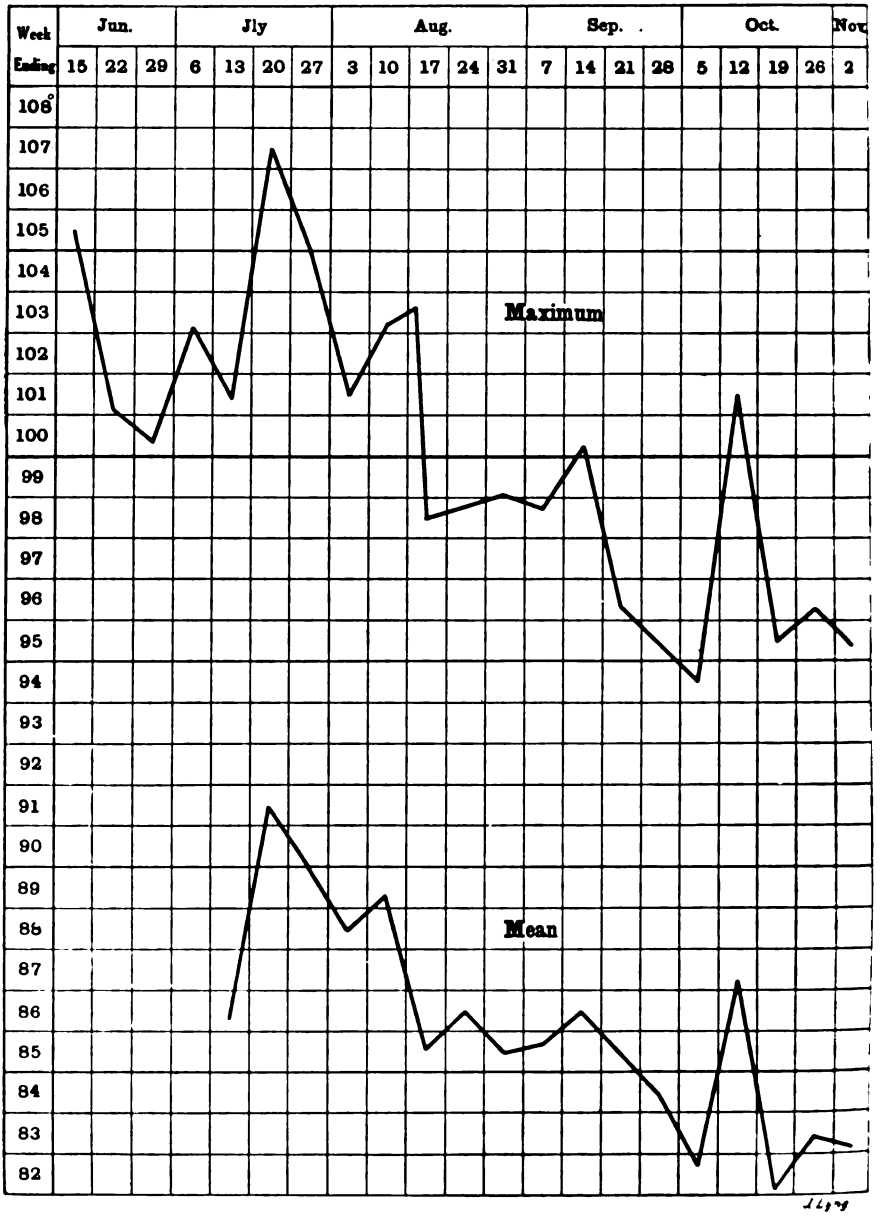
Graph No. 12

AVERAGE WEEKLY MAXIMUM AND MEAN SHADE TEMPERATURE



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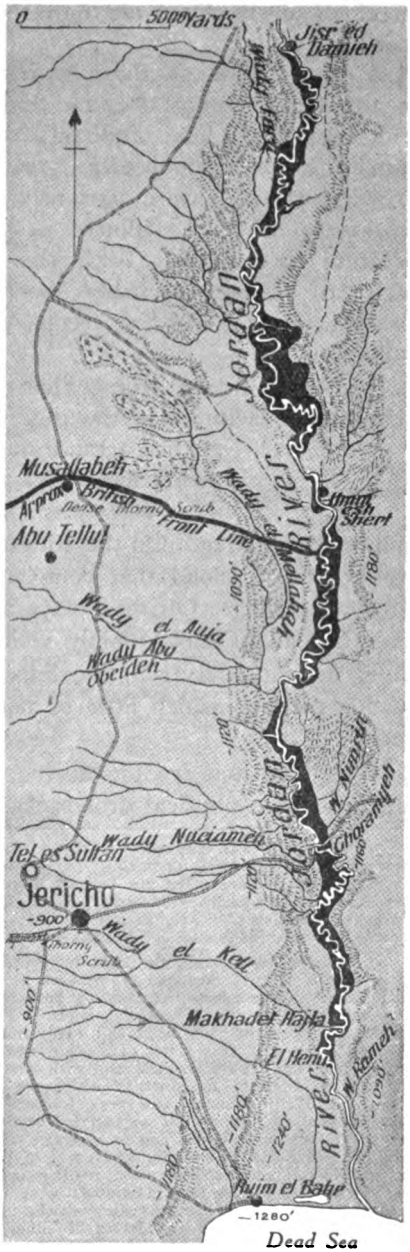
carried on their duties of patrolling, digging, wiring, caring for their horses, anti-mosquito work, and the like was naturally much greater. Shelter consisted chiefly of bivouacs which barely allowed sitting up; in the few bell tents the temperature at times reached 125 degrees. Even in the fine Indian pattern tents, which were largely in use by the divisional receiving stations when stationary, one and a half degrees higher than true shade was registered. Only the mud and stone huts erected at the end of summer for the receiving station showed a temperature lower than true shade —some four and a half degrees.

Its direct effects slight

The direct effects of heat were inconspicuous. The question of providing heat exhaustion stations was considered in the early summer, but the necessity for their establishment never arose. In the higher parts of the Jordan Valley the mitigating



The Jordan Valley, showing depths below sea level

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effect of even slight air movement was felt in a post-meridian breeze. But without doubt freedom from direct heat effects such as those experienced in Sinai were due to the large supply of pure and cool water for drinking and washing.[4] The indirect effects, however, of the climate were undoubtedly great. The "extremely depressing effects" were variously attributed to "humidity," "pressure effect," "stillness of the air," and "high temperature at night." With the exception of the second, each of these probably contributed to the debility clearly manifested by troops after a period in the valley.

Dust and depression

But even more trying than the heat, and perhaps a debilitating factor, was the dust. It would be difficult to picture a more dusty atmosphere than that in which the troops in the Jordan Valley lived. The dust was of a light powdery nature and very irritating. On the stillest of days a single horseman would raise a cloud that completely obscured him and was slow in settling. On most days a breeze blew in the valley, and the pall of dust, plainly visible from Jerusalem twenty miles distant, had from the hills the appearance of a bank of fog through which little or none of the country could be seen.[5]

The food and feeding during this period did not help to mitigate these physical drawbacks. Meat, for the most part,

[4] "Thirst" (it was noticed) "in the Jordan Valley hardly ceases, and fluid is consumed in very large quantities. One gallon daily is a low average amount. Egyptians required one gallon per head at Romani, two in the Jordan Valley. Sweat secretion is tremendously stimulated . . . fluidity of kidney and bowel excretions markedly diminishes." See, as a contrast to experiences here, the serious effects recorded in *pp. 571-2 and 600-1.*

[5] It was far from being the light horsemen's first experience of dust. In the early months of 1915 they had grown used to the violent dust storms known as the khamseens, during which the stinging particles of sand pervaded everything, and any kind of work was almost impossible. These, however, lasted but three days at most. The sand was clean and easily got rid of, and, apart from sand colic, did little harm. In 1916 a few of these storms were encountered in the Sinai Desert under conditions of greater heat and with almost an entire lack of shelter from sun and sand. In 1917 the dust in which the light horsemen lived while stationed along the Wady Ghuzze was very bad, being powdery in nature and present practically all the time. It seemed irritating, and was thought to be responsible for slight intestinal disease and to a certain extent for the epidemic of septic sores. But none of these experiences was equal to the Jordan Valley dust. Any body of troops after a short march on a regular track presented a ludicrous appearance suggestive of pierrots, and individuals were often quite unrecognisable. On one occasion the writer, while travelling slowly in a motor car, met another car in a head-on collision without the driver of either car having caught a glimpse of the other until after the impact.

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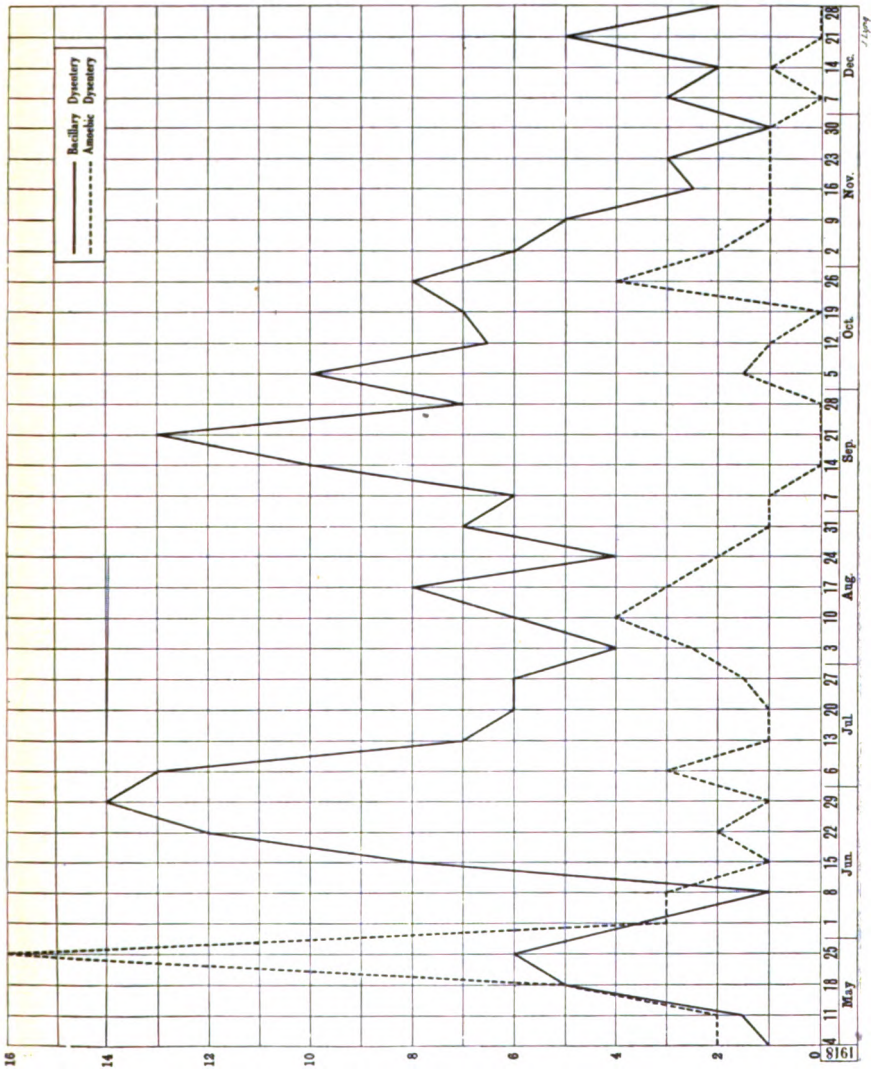
Graph No. 13

WEEKLY RATE PER 10,000 OF STRENGTH, OF MEN EVACUATED FROM THE DESERT MOUNTED CORPS WITH DYSENTERY: MAY TO DECEMBER 1918



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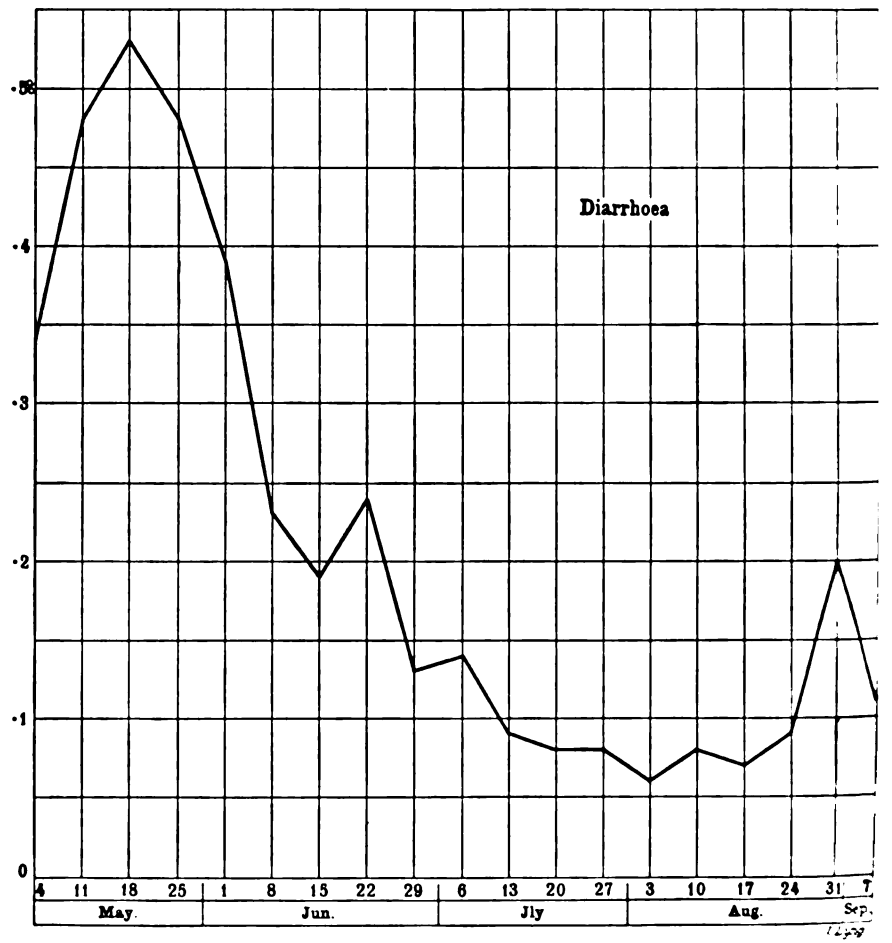
Graph No. 14

WEEKLY RATE PER CENT OF STRENGTH, OF MEN EVACUATED FROM THE DESERT MOUNTED CORPS WITH DIARRHŒA: MAY TO SEPTEMBER 1918



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was "bully beef"; the bread was dry before it reached the troops; fresh vegetables were scarce. The depression of spirits and generally careworn appearance of the troops living under these conditions, apart from actual ill-health, was very noticeable at this time. Shortage of sleep—the soldier's chief hardship—was here much intensified by the heat and mosquitoes, and no doubt it was largely this, together with the cumulative effects of the hardships of the two previous years, that caused the general depression.

Malaria

But the feature of the Jordan Valley—as of Palestine in general—which during the summer had the greatest influence of all upon the situation in respect of health was the endemic prevalence of malaria. All other factors were of comparatively minor significance. A certain amount of dysentery occurred, and a few cases of enteric. Relapsing fever, typhus, and smallpox were seen; sand-fly fever was not very uncommon. But by this time the sanitary situation was well in hand. The two Australian and two British sanitary sections, long since well-organised and highly efficient, relieved each other in the Jordan Valley. Sanitary discipline was good. Incineration was the recognised method of disposal of excreta; fly-breeding and louse-infestation were under control. Scabies was not in Palestine a serious problem. The incidence of naso-pharyngeal and inspiratory infections was not exceptional; that of non-transmissible disease was not excessive for two years of heavy strain and physical drawbacks and was in large measure amenable to the various steps taken to promote rest and recuperation. But from May onwards an increasing and ultimately heavy wastage was brought about by infection with the parasite of malaria—both *Plasmodium vivax* (benign tertian) and *Plasmodium falciparum* (malignant tertian), with a small incidence of quartan—in spite of determined, well-organised, and scientifically controlled measures of prevention.

Indeed, the greatest problem faced by the medical services in the whole campaign was that of the prevention of malaria during the summer of 1918. In 1916, as has been noted, a small number of men had contracted the disease at the

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transport camp alongside the Sweet-water Canal at Kantara.* In the following year the mosquito-breeding pools of the Wady Ghuzze were a more fruitful source of infection, and continual efforts were needed to render them innocuous. In 1918, however, the menace of malaria to the health and strength of the army became very great and called forth vast efforts to hold it in check. All Palestine and Syria are infested with malaria-bearing mosquitoes, particularly in the low-lying country of the Jordan Valley, and little less in the wadys and swamps of the coastal plain. More than one Crusade appears to have been brought to an end by malaria, and the losses occasioned by it are stated by some writers to have been a factor in the failure of Napoleon's expedition into Syria. Under the general direction of the D.M.S., E.E.F., and with the expert advice of Major E. E. Austen, some of the most important and extensive anti-malarial work done in the war was carried out in the Jordan Valley; the immediate direction was by the medical services of the Desert Mounted Corps. The actual details of preventive work in the control of mosquito-breeding were carried out, under the supervision of the administrative officers of corps and divisions and of the sanitary sections, by troops of all arms, supplemented by the Egyptian Labour Corps. Every man in the force was made to feel some personal responsibility in the fight against the pest.

Extensive anti-malarial campaign

Based on the life-cycle of the malarial parasite, evolved in the æon-long association of mosquito and man, wherein the female of various mosquitoes—notably of the genus anopheles—acts as the "definitive" host for the sexual stage of the parasite, and man as the "intermediary" host for the asexual stage, which is completed in his blood, there are four obvious lines along which action may be taken to prevent transmission of the disease. The first is the removal of the

* It may be recalled that this area of Egypt was at one time heavily infested with malaria, and was one of the first in which was illustrated the epochal nature of the discovery of the *Plasmodium malariæ* and the demonstration of its life-cycle in the mosquito. It may also be remembered that, in the practical measures which to a great extent stamped out the disease in Egypt, Sir William MacGregor, at one time Governor of Queensland and of Papua, and himself a graduate in medicine, took an important part.

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infected persons. As the disease was widespread throughout Palestine, this would have involved the deportation of the whole population within the area occupied by the troops.[7] Considerable numbers of Indian and British troops from Macedonia were also carriers. Search was not made for these; but all acute cases diagnosed were evacuated and effectively treated. It was, however, considered impracticable to combat epidemic malaria by removing the primary source of infection. A second line of defence is by preventing the bite of the mosquito. As far as possible, this was done, mosquito-nets to fit inside the bivouac being issued to every man. It was found, however, in the Desert Mounted Corps that close supervision was necessary to ensure their proper use. In some units it was thoroughly carried out, and disciplinary action was taken against any man who did not cover himself properly when sleeping. In other units mosquito-nets were looked on as effeminate and unsoldierly, and little supervision was exercised. A repellant cream was issued, but proved of little or no value. Gloves and veils were issued to a few units for the use of men on patrol at night; the gloves were useful, but the veils interfered too much with vision. Third, there is the possibility of prophylactic treatment, which aims at the destruction of the malarial parasite in the blood, by means of quinine or other drug previously and regularly administered to the exposed individual. This was not generally carried out.[8] Lastly, measures for the prevention of mosquito-breeding may be carried out within the area concerned, and this was the line along which the greatest efforts were made in the Desert Mounted Corps.

Removal of infected impossible

Precautions against bite

Quinine prophylaxis

Prevention of breeding

[7] An examination of the children in Jericho showed that enlargement of the spleen—almost definite evidence of malarial infection—was present in 60 per cent.

[8] The value of this defensive method was (and is) much debated. To obtain information on the question, it was tried in two light horse regiments, the 9th and 11th. In one squadron in each regiment every man was given five grains of quinine daily by mouth from May 15 to Aug. 24, the remainder of the regiments having none. During this period ten cases of malaria occurred in the treated squadrons, eighty in the untreated—a ratio (allowing for difference in strength) of one case in the treated troops to 2.3 in the untreated. (*See Part III of this Volume* in connection with this method of prophylaxis.)

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It was not till May that more than a few scattered cases of malaria occurred, the first alarm being given when several men of the Camel Corps who had been evacuated to Ludd after the first trans-Jordan raid were reported suffering from malaria. Two months earlier detailed instructions had been issued as to the measures to be taken both for the prevention and for the treatment of the disease, but little had actually been done. From this time until the corps left the area, operations against the larvæ of *Anopheles maculipennis, Anopheles palestinensis,* and *Anopheles turkhudi* — the species found most commonly in the Jordan Valley, and all known to be malarial vectors—were prosecuted with increasing vigour, as it was over the whole British front. The conditions in connection with mosquito-breeding vary considerably in the three zones into which Palestine naturally falls. In the coastal region (XXI Corps area) breeding was heavy along the Nahr Auja and its tributaries and in swamps. In the Judæan Hills (XX Corps) anophelene breeding, though considerable, was not excessive, the water-supply being chiefly from wells and cisterns more favoured by other varieties of mosquito.[9] The Jordan Valley was much the worst; indeed the area immediately fronting the Turkish positions, and of very considerable extent, was described by Major E. E. Austen as "by far the worst I have ever seen either in Palestine or Macedonia." Here the breeding grounds occupied in all a very extensive area, and to deal effectively with it so as to control breeding was a huge undertaking and demanded exact organisation, close supervision, and the continuous labour of large numbers of men.

Before the beginning of the malarial season, in supplement of the sanitary sections there had been appointed in each brigade a "Brigade Malarial Officer,"[10] who trained anti-malarial squads (of from six to thirteen) in each regiment. The first step taken was the location by these squads of all actual or potential breeding-places: by combining the

[9] *Anopheles bifurcatus* was, however, found in cisterns all the year round.

[10] Provision made for the training of medical officers in all the aspects of malarial prevention, diagnosis, and treatment has been mentioned in previous chapters.

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reports of different squads a complete mosquito survey of each divisional area was made and a map compiled. A copy of this map, showing the situation in his area, was given to the A.D.M.S. of each division when it entered that area. This survey, and the subsequent inspection and control of the execution of the anti-mosquito measures decided upon, were supervised by the D.A.D.M.S. of the division, who made frequent reports for corps headquarters and was in turn overlooked by the D.A.D.M.S., Desert Mounted Corps. Finally, expert advice was given by Major Austen, who inspected and reported to the D.M.S., E.E.F., on all mosquito-breeding areas within the army zone. Wherever possible, the direct performance of the work was handed over to an engineer officer. The large number of men required was provided chiefly from the divisions in the form of working parties, but these were for a time supplemented by 1,000 native labourers from the Egyptian Labour Corps in areas unlikely to be shelled. As the anti-mosquito work carried out by the troops was additional to the daily task of trench-digging, wiring, and the care of horses it encroached gravely on their already meagre rest, and at first working parties were, not unnaturally, supplied with some unwillingness; but after personal inspection of the worst areas the Commander-in-Chief ordered that anti-mosquito operations were to take precedence of all duties except protection.

A mosquito survey undertaken

And a vigorous campaign

In view of the thoroughness with which these anti-malarial operations were carried out under service conditions immediately in front of an active enemy, an account in some detail may be of use. The anopheles mosquito breeds chiefly in still but fairly clear waters, especially those in which weeds and algæ are growing. The essence therefore of anti-mosquito work was the elimination of all such stagnant collections of water of whatever size, or, failing this, to cover the surface with a thin coating of oil, whereby the mosquito larvæ are denied access to the air and rapidly die. The collections of water demanding attention were contained, first, in the wadys which, rising among the Judæan hills, enter the Jordan after traversing the five to seven miles of its alluvial valley occupied by the troops. In the northernmost part of this area were the Wadys Auja and Obeideh, the latter a seasonal, the former a good-sized perennial

The breeding grounds

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stream; into the former flows the Wady Mellahah, which, commencing behind the enemy lines, was joined by several tributaries traversing the valley on the Turkish side. The course of these and other streams that enter the Jordan have the same general character in respect of mosquito-breeding. Down the eastern slopes of the Judæan range the streams run in several rocky gorges some hundreds of feet deep and in parts almost inaccessible. Entering the flat Jordan plain, some become in summer a succession of pools, which come to a gradual end among the undergrowth. The banks of all are irregular and undefined, and are overhung with vegetation; the pools are choked with reeds, and work among these in the damp heat was extremely exhausting. Just inside the British wire close to the Wady Mellahah was a marshy tract, several acres in extent, covered with low scrub and intersected by small streams and full of pools of water. From this marsh the small wady flowed to the Auja, often blocked with dense beds of grassy weed. This area was described by Major Austen in his report as "a most dangerous and pestilential spot, in which a species of *Anopheles turkhudi*, a known carrier of sub-tertian malaria, is breeding in myriads." In the neighbourhood of Jericho are two important springs, the Ain es Sultan and Ain ed Duk; from the former an abundant supply of water flowed into two reservoirs, from which irrigation channels ran through dense undergrowth, to be broken down into numerous minor channels where mosquito-breeding was intense. From the Ain ed Duk flows the Wady Nueiameh, a perennial stream led by aqueduct round the foot of Gebel Kuruntul (the Mount of Temptation). The banks of this wady, much used for irrigation, are overhanging and covered with vegetation, while algæ along the edges gave cover for myriads of mosquito larvæ. It was also used for watering horses, and even in the small pools forming in hoof holes mosquito larvæ would be found in swarms. East of the Jordan, within the Auja and Ghoraniyeh bridge-heads, were large swamps, while further south, near the Dead Sea, was the most difficult area of all to deal with—a swamp round the mouth of the Wady Rameh covered with dense jungle, chiefly bamboo. Other swamps of varying size, some with dense vegetation, lay along the Jordan Valley. In every collection of fresh water intense mosquito-breeding was found. The methods of dealing with these breeding-places were as follows. In all areas an endeavour was made to expose the whole of the water-course as fully as possible by cutting down and clearing the vegetation so as to make a path on either bank of the stream. In some places, such as the upper part of the Wady Nueiameh, this was extremely difficult and was only carried out by burning. The next step was canalisation, the object of which was to confine the water in a channel as narrow as possible and with steep sides so as to prevent stagnation and maintain a rapid flow. This was carried out by making banks of stones placed in line and backed with puddled clay. Side-channels were closed. By these means many shallow ill-defined channels from 10 to 12 feet broad were converted into defined deep drains from 3 to 5 feet across, crossings being made where required. Many miles of this canalisation

Clearing, canalisation, and draining

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102. The Australian Mounted Division's sanitary section passing along the Wady Nimrin

An enemy machine-gun opened fire on the section near the spot shown, causing nine casualties out of a strength of nineteen.

Lent by Major Harvey Sutton, A.A.M.C.
Aust. War Memorial Collection No. B2714.

103. One of the drains from the swamps at Hajla in the Jordan Valley

Aust. War Memorial Official Photo. No. B227.

To face p. 710.

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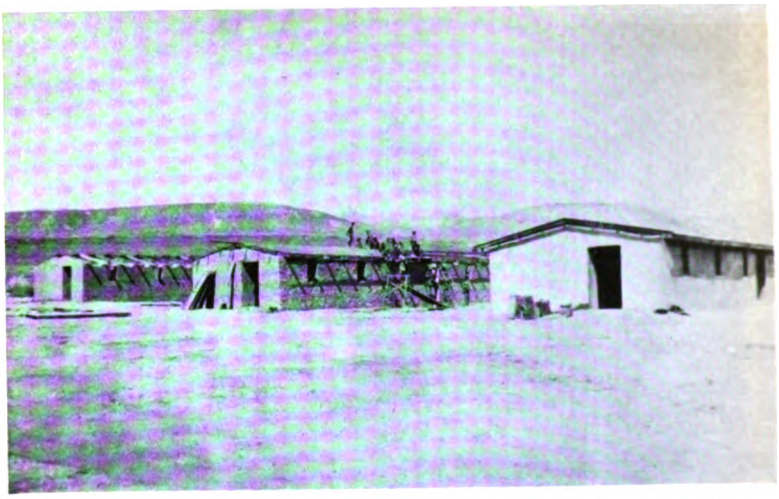

104. Hospital wards of stone and mud in course of construction at the Anzac Mounted Division receiving station near Jericho, July 1918

Lent by Major A. M. Allen, 1st Fld. Sqn., Engrs.
Aust. War Memorial Collection No. B2528.

105. Canalisation in the Jordan Valley swamps

Lent by Major Harvey Sutton, A.A.M.C.
Aust. War Memorial Collection No. A2238.

To face p. 711.

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were carried out. As the volume of water diminished, the channels were narrowed. Sometimes channels only 6 to 9 inches wide were left, in which case oil drip-cans were placed on wooden supports at the source and oil was delivered at the rate of 20 drops per minute. Constant patrolling and attention were required to keep these canals in order, the smallest break being quickly followed by mosquito-breeding. The method of dealing with the three principal swamps mentioned was by drainage, in the planning of which considerable ingenuity was required. The principle adopted was to make one central drain with subsidiary channels and to remove all vegetation along their banks, and thus maintain a free flow of water. When the flow had stopped, the channels were filled in. In this way large swamps were completely dried up. When these methods were inapplicable, oiling was carried out, a mixture of equal parts of heavy oil and kerosene being used. In a few cases pools were pumped dry and filled in. To secure effective results, whatever the method adopted, constant supervision was necessary, for example, to deal with the growth of algæ, which was very rapid and provided excellent cover for breeding, as well as protecting the larvæ from the small fish which feed on them.

Result of anti-malarial campaign

The question whether, and if so to what extent, these vast labours had commensurate result in lessening the incidence of malaria is one to which unfortunately an exact answer—that is to say, one which may be expressed in figures—cannot be given. For this the chief reason is that the troops left the area at the time when the most extensive outbreak—that of malignant tertian—was due to occur.[11] Moreover the heavy incidence of this form subsequently experienced and the great sick wastage which accompanied it were associated with factors that complicate the epidemiological problem. Of these, and of the subsequent history of malaria in the light horse, an account appears later, together with details of the diagnostic work carried out in the laboratories.[12] Here it may be stated that there was a steady rise in the number of cases (almost all of the benign type of tertian) up to the middle of July, followed by a fall to the end of August. In September the curve rose slightly till the time of the opening of the final offensive. At no time during this period did the evacuation from malaria exceed 1.5 per cent per week of the total strength of the corps.

[11] The seasonal rise of benign tertian precedes that of malignant tertian in Palestine by about a month.

[12] A graph, showing the incidence of malaria in the Desert Mounted Corps, is given at *p. 750*.

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Sick wastage

The total wastage from all sickness during this period is shown in the following table for the Anzac Mounted Division, which may be taken to represent sufficiently accurately the proportion for the Desert Mounted Corps.[13]

1918.	Average weekly sick rate per cent.	
	Admitted to Fld. Ambs.	Evacuated from Fld. Ambs.
January	.95	.61
February	.70	.53
March	.83	.76
April	1.85	1.71
May	1.94	1.83
June	2.38	2.14
July	4.19	3.98
August	3.06	2.91
Up to 14th September ..	3.08	2.52

Measures to promote health

Besides the specific steps mentioned above to prevent disease, no effort was spared to minimise the time during which the troops should be exposed to the conditions in the Jordan Valley, and to promote their general health. The plan adopted on the military side was to hold the valley lightly, and thus give each of the four divisions in turn only a short tour of duty—from four to six weeks. On relief a division was sent either to the comparatively bracing climate of Bethlehem and the Pools of Solomon south of it in the Judæan Hills, or to the less bracing but cooler coastal area. As the result of experience of the good effects of the rest stations on the beach at Tel el Marakeb in 1917, an "Ambulance Rest Station" for the corps was established in the grounds of a monastery at Jerusalem. This was staffed by the personnel of the immobile sections of different ambulances in turn. A good supply of tents and mattresses was obtained, extras in the way of food provided, and the troops put under conditions differing as much as possible from the ordinary regimental life. Valuable help was given by the Australian Red Cross Society in the supply of games.

[13] The other three divisions of the corps were in process of reorganisation, so that comparable figures are not available. *See also Graph No. 16 at p. 744.*

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amusements, and comforts. The men sent to this rest station, including Indian cavalrymen, were those run down or debilitated after minor sickness. The results achieved illustrate the great importance of efforts along these lines in the prevention of sick wastage in an army. The system of leave to the Australian Rest Camp at Port Said had been stopped during the Palestine offensive: this was reopened at the beginning of January, 1918, and throughout the period spent in the Jordan Valley quotas averaging some 350 men were sent there every ten days. This allowed seven days clear rest, under very satisfactory conditions.

The sick Australian trooper evacuated to the base during this period of the war in the East was received, for treatment, convalescence, and return to duty, into a medical system which was highly organised and very efficient: and though the proportion of the force "constantly in hospital" had by this time reached a high figure—in some measure an index of the increasing wear and tear of the war—the moment for which the toils of the past two years had led up found the Australian formations satisfactorily at strength and the troops themselves, though war-worn, physically fit to rise to a great occasion.

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SECTION III—THE FINAL OFFENSIVE

CHAPTER XI

THE DASH TO DAMASCUS

THE final phase of the Palestine Campaign, in which the force of the Turk was destroyed, began on September 19th; by the 30th the rout of his armies was complete. These twelve days covered one of the most remarkable cavalry movements in the history of mounted warfare. For the medical service of the Desert Mounted Corps they brought problems of immense difficulty, particularly in the moving of the medical units to keep pace with the advance, and at the same time to dispose of the casualties from a force which had outrun communications from its most advanced base and moved unsupported through hostile country. There were also the sick from a diseased and beaten enemy to be dealt with.

* * *

By the beginning of September preparations and plans were complete for an offensive which had for its final objective[1] not a local or limited victory, but the complete elimination of the Turk from Palestine and Syria. The

The forces engaged

constituents of the British force available for this offensive were—taking them from west to east—the XXI, XX, and Desert Mounted Corps, making a total of 12,000 sabres, 57,000 rifles, and 540 guns. The Turkish forces opposing it were (in the same order) the Eighth and Seventh Armies west of the Jordan, and the Fourth Army east of and facing it, or at Amman; a total of 4,000 sabres, 32,000 rifles, and 400 guns.[2] The Turkish front line ran roughly parallel with the British from the coast just north of Arsuf to the Jordan a few miles north of the entry of the Wady Auja at its junction with the Jordan. East of the Jordan it bent south at right angles at the foot of the hills of Moab.

The coastal plain between the Judæan hills and the sea—the terrain which was to be the scene of the first stage in the

The terrain

advance of the mounted troops—gradually narrows to the north as the Judæan range divides and its north-western fork bends to reach the coast

[1] *See p. 741 (chap. XII).*

[2] The Turkish ration strength south of Damascus was over 100,000.

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at Mount Carmel. North-east of this range lies the plain of Esdraelon (Armageddon), shaped like an arrowhead with its point towards Haifa on the coast and its barbs at Jenin on the south (where the Judæan range forks) and at Mount Tabor on the north. About the centre of the arrowhead is the village and railway junction of El Afule, and from here the shaft of the arrow runs down the Valley of Jezreel to Beisan and the Jordan beyond. The coastal plain is sandy, intersected by streams and in parts swampy. The only formed road ran parallel with the railway, close to the foot of the hills. Across the Mount Carmel range there was only one route suitable for wheeled transport, the Musmus pass (followed by the army of Thothmes III 3,400 years earlier). This was narrow and rough, and easily defended. The road through this pass debouches on the plain of Esdraelon at the village of El Lejjun (the ancient Megiddo—to which the battle owes its name). About five miles to the north-west is a track across the range passing from Jarak to Abu Shushe.

Attention may be directed to the account already given[3] of the reorganisation of the Egyptian Expeditionary Force—which led to the replacement of fifty per cent of the British troops by Indians—and of the preparations, combatant and medical, made at the advanced base and on the lines of communication for a renewal of the offensive. It has also been explained that the trans-Jordan raids led the enemy to direct his attention to his eastern rather than his western flank.

Allenby's plan gave an important rôle to the mounted troops. While every effort was to be made beforehand to give the impression that the country east of the Jordan was the British objective, the attack was to be made on the coast where, through a breach to be made by the infantry, the mounted troops would pass in a wide flanking movement on the enemy's lines of communication, especially the railway. This ran from Deraa junction across the Jordan to Semakh on Lake Tiberias, and thence by a winding course to Nablus, the main line passing to Tulkeram at the edge of the coastal plain and on to Kalkilieh. Only one good road ran to the rear—that from

Allenby's plan

[3] *See p. 687.*

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Nablus to El Afule and Nazareth; of two others, which were of poor quality, one ran from Nablus to Beisan, the other to the Jordan at Jisr ed Damieh.

The detailed plan provided that at dawn, after concentrated bombardment, an assault should be made by the XXI Corps on the enemy's defences between the coast and the railway at Jiljulieh. These having been carried, the line would be swung north-east towards Messudieh, bending the enemy's right flank back to the Judæan hills. Through the gap the Desert Mounted Corps (4th and 5th Cavalry and Australian Mounted Divisions[4]) would pass, ride hard north along the coast, and, ignoring the enemy unless directly opposed, seize the two passes in the Mount Carmel range (Abu Shushe and Musmus). Then, passing through to the plain of Esdraelon, it would occupy El Afule, Beisan, Jenin, and the Jisr el Mejamie bridge, sending also a detachment to Nazareth, the headquarters of the Turkish Commander-in-Chief, Liman von Sanders. Twenty-four hours later the XX Corps in the hills north of Jerusalem would advance, simultaneously with the XXI Corps, on Nablus and towards the Jordan, and thus block the roads from the hills to the Jisr ed Damieh bridge. Meanwhile a special force (Chaytor's Force, consisting of the Anzac Mounted Division and eight battalions of infantry) was to secure the right flank and, by demonstrations, conceal the departure of the main body of cavalry; further, by bluffing the Turk into believing that an attack was projected towards Amman, it would prevail on him to hold troops east of the Jordan. When the advance of the Desert Mounted Corps up the plain should have progressed sufficiently, this force was to move on Jisr ed Damieh, Es Salt, and Amman.

The period 1st to 19th September was occupied in concentrating the cavalry divisions in the vicinity of Jaffa, the Jordan Valley defences being left meanwhile in the hands of Chaytor's Force. On September 9th the Desert Mounted Corps Headquarters moved to Jaffa. The keynote to success was secrecy, and very elaborate means were taken to ensure it. All moves to the west were by night, to the east by day.

[4] The latter minus the 5th A.L.H. Bde., which (including a French cavalry detachment) was attached to the XXI Corps.

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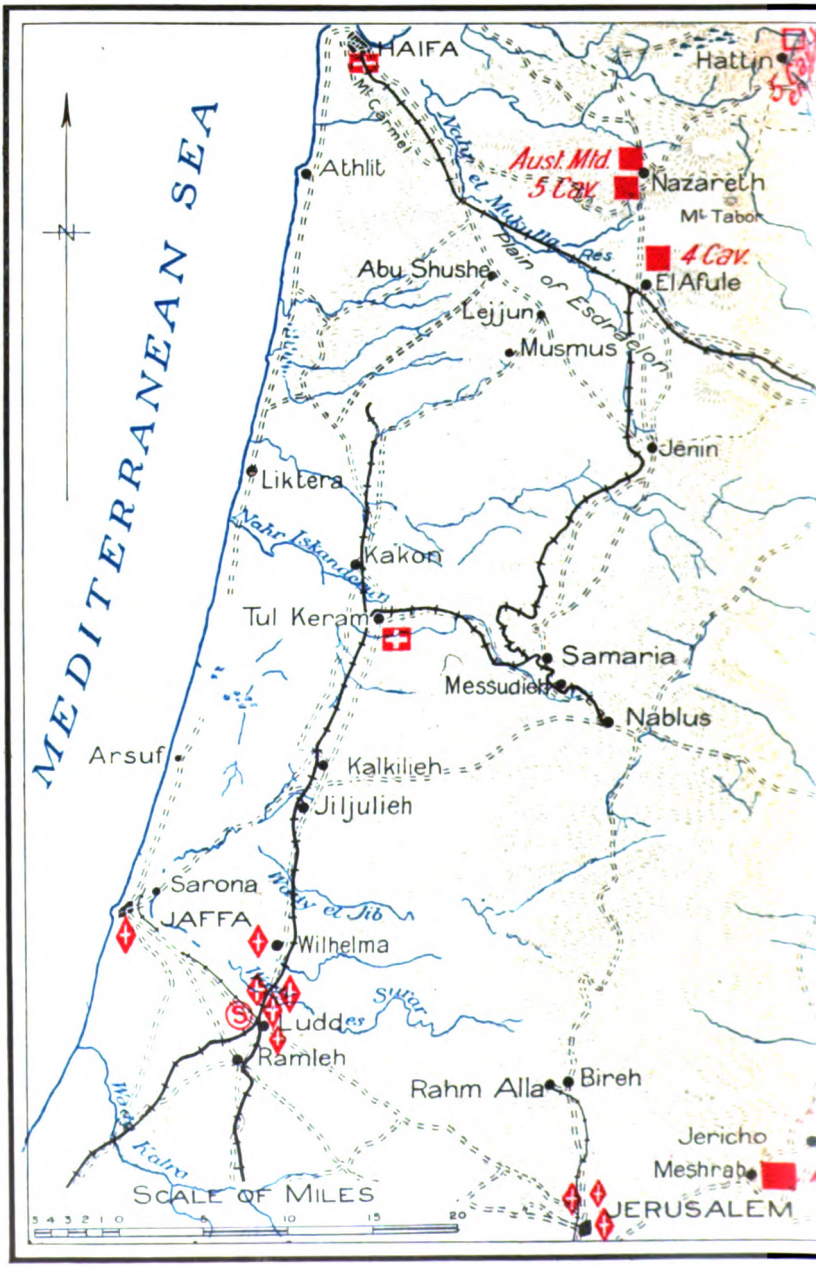
MAP



THE END OF THE FIRST PHASE OF THE FINAL OFFENSIVE, SHOW
27TH-28TH SE

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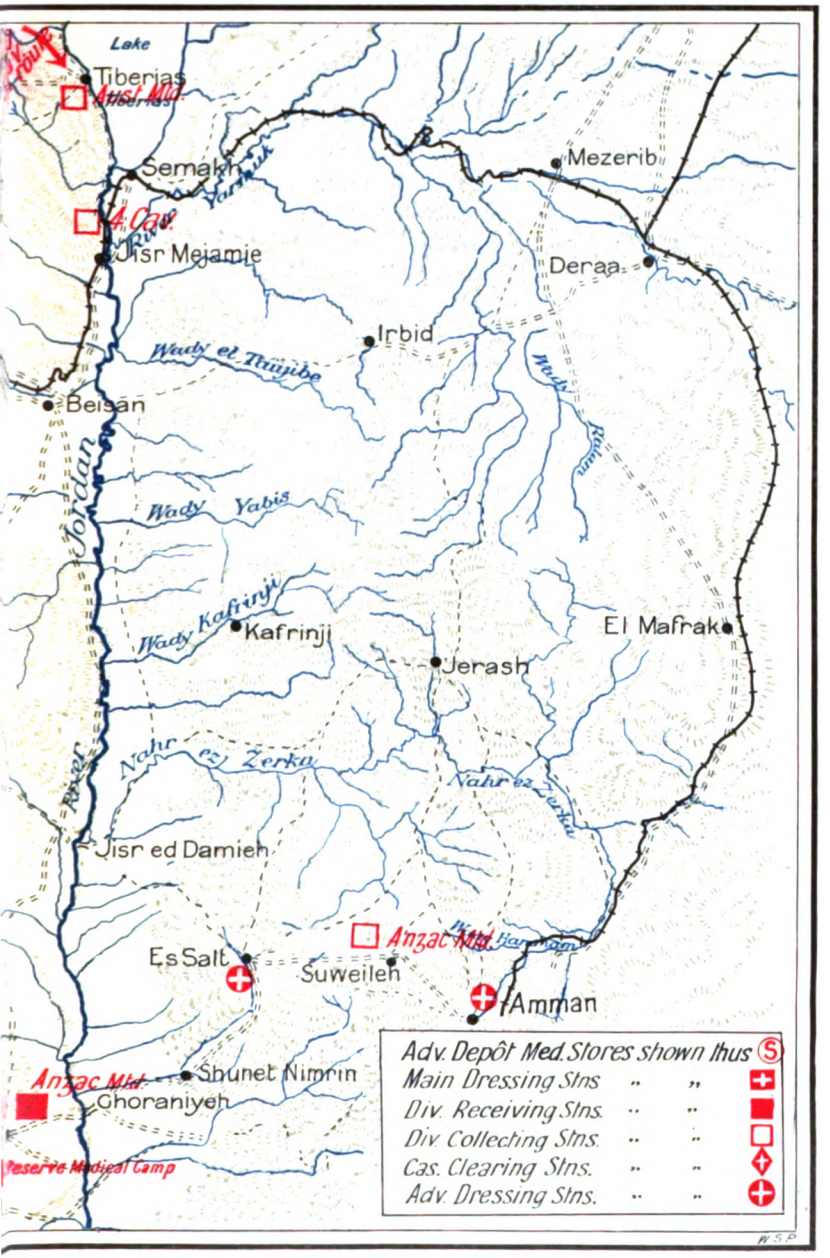

ING THE MEDICAL SITUATION IN THE DESERT MOUNTED CORPS,
PTEMBER, 1918

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In consequence little time was given for special preparation by the medical service in the mounted corps; but on September 1st the personnel was ordered to go into hard training for marching. For this advance divisional receiving stations were formed of two immobile sections instead of three. The 4th Cavalry Division receiving station was assembled only the day preceding the offensive; in the 5th Cavalry Division an order from a brigade commander, and without the knowledge of corps or divisional headquarters, led to sixty-eight Indians of the divisional receiving station being returned to the reinforcement camp a few hours before the attack. This ill-judged order, which caused great embarrassment and interfered with the whole plan of evacuation in the corps, was due to the fact that the formation had been on detached duty, and that neither brigade commander nor ambulance officers had realised that in a divisional formation the field ambulances are divisional troops and directly under the orders of the A.D.M.S. The Desert Mounted Corps Operating Unit and two malarial diagnosis stations[8] accompanied the 4th Cavalry and Australian Mounted Divisions' receiving stations.

The medical preparations

Heavy motor ambulance waggons were exchanged for light ones, and, profit being drawn from past experience, extra camels were obtained to carry a reserve supply of two days' rations and medical comforts for each divisional receiving station. Successful experiments were made in the use of motor tubes for dropping medical supplies and comforts from aeroplanes.

rrangements by the D.D.M.S., Desert Mounted Corps, provided that mobile sections should accompany their brigades; personnel of the divisional receiving stations —marching on foot—and wheeled transport were to move in rear of their divisions.

The medical plan

The plan provided for receiving stations in echelon. The first was to be at Khurbet es Sumrah near the Musmus pass (5th Cavalry Division receiving station), the second at

[8] As the country through which the corps was to advance was—on the authority of Major Austen—one of the most malarious in the world, and as the months of September and October were those in which the malignant tertian type—the most common—became especially epidemic, instructions were issued by the D.M.S., E.E.F., for the prophylactic administration of ten grains of quinine daily to all troops. The retention of mosquito nets was also recommended in the Desert Mounted Corps.

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Tulkeram (4th Cavalry), with the Corps Operating Unit, the malarial diagnosis stations, and the Australian Mounted Division receiving station—the last-named in reserve.[6] From Tulkeram motor ambulance convoy cars would operate for infantry and mounted troops alike. Alternative plans provided for failure to capture Tulkeram and for inability of the motor ambulance transport to negotiate the road up the coast.

As a base for the evacuation of the mounted troops, a combined clearing hospital was opened by the D.M.S., E.E.F.,[7] at Wilhelma. By order of the Deputy Adjutant-General, Egyptian Expeditionary Force, No. 35 Motor Ambulance Convoy—still the only one in the force—was placed under the Headquarters of Palestine L. of C. To augment the accommodation at the new advanced base of operations, special camps were opened for some 5,000 light cases.

The attack

The attack at dawn on **September 19th** by the XXI Corps was attended by complete success; a wide breach was soon made in the enemy line, through which the cavalry dashed. Little opposition was encountered in the ride up the plain, all the objectives being reached ahead of time. The 5th Cavalry Division, moving by way of Liktera, Jarak, and Abu Shushe, directed one brigade against Nazareth and a second against El Afule, which was captured at daylight on the **20th,** the troops having covered sixty-five miles in twenty-two hours. The 4th Cavalry Division, moving by the Musmus pass, on the 20th occupied Beisan (eighty-five miles in thirty-four hours); the Australian Mounted Division on the same day moved across the plain of Esdraelon and captured Jenin, thus closing the Dothan pass north of Nablus. In the meantime, while the outlet to the north was blocked by the Desert Mounted Corps and the XXI Corps had continued its relentless pressure, the XX Corps moved through the hills on Nablus.

[6] *See Appendix No. 4.* An initial arrangement, approved by the D.M.S., E.E.F., provided that wounded from mounted troops should be evacuated to the infantry main dressing-station to be established at Tulkeram, and that eight motor ambulance waggons from the convoy should be attached to the mounted corps. This order was rescinded before the operations, greatly to the detriment of the mobility of the unmounted receiving station personnel and to evacuation from the Desert Mtd. Corps.

[7] On the day of the offensive the D.M.S., E.E.F., Surg.-Gen. W. T. Swan, was replaced by Col. R. H. Luce, D.D.M.S., XX Corps.

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106. ANCIENT AQUEDUCT AT AIN ED DUK IN THE JORDAN VALLEY

Note the canalisation of the stream in the foreground.

Aust. War Memorial Official Photo. No. B239.

107. AUSTRALIAN LIGHT HORSEMEN PROCEEDING THROUGH THE MUS MUS PASS DURING THE FINAL OFFENSIVE

Aust. War Memorial Collection No. H14069.

To face p. 718.

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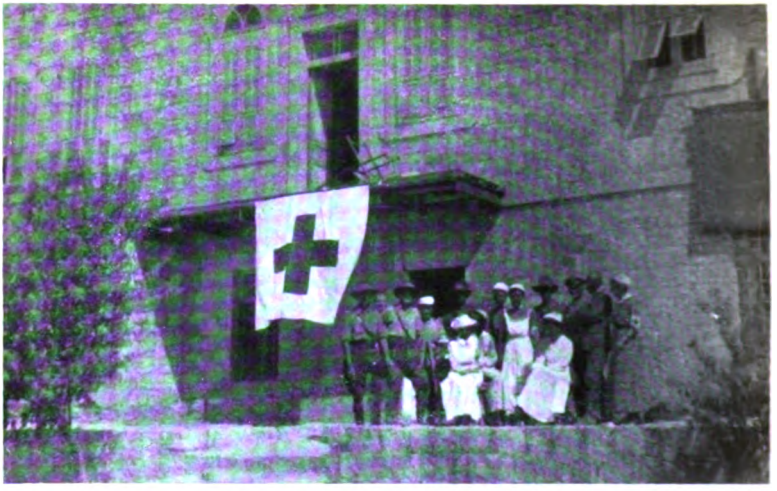

108. STAFF OF THE GERMAN HOSPITAL AND A.A.M.C. OFFICERS AT JENIN

During the final advance the hospital was taken over by the 3rd Australian Light Horse Field Ambulance.

Lent by Major R. G. Woods, A.A.M.C.
Aust. War Memorial Collection No. A2733.

109. PART OF A HOSPITAL ATTACHED TO THE TURKISH PRISONER-OF-WAR CAMP AT KAUKAB, DAMASCUS

An enemy doctor (Syrian) is in the foreground.

Aust. War Memorial Official Photo. No. B764.

To face p. 719

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The casualties in the Desert Mounted Corps formations during this first phase of the advance were trifling. While the mobile sections kept pace with their brigades, the divisional receiving stations also arrived at their destination ahead of time and were established in accordance with plan, the 4th at Tulkeram with the Australian in reserve, the 5th at Khurbet es Sumrah. All the mobile sections, however, as also the diagnosis stations, were forced by the heavy sand to abandon some equipment and so lighten the waggon loads. The motor transport of the Australian Mounted Division could not get through, but rejoined its division at Jenin on the 21st, when the main road was clear. The motor ambulances of the other two divisions filled up with wounded infantry, and were diverted to Tulkeram, rejoining their divisions on the plain of Esdraelon next day.

Medical work

In the early hours of the **22nd** the Jisr ed Damieh bridge—the last outlet from the *cul de sac* in which the Turkish force was contained—was closed by Chaytor's Force, and during the next two days the Seventh and Eighth Turkish Armies were annihilated or captured. On the **23rd** a brigade of the 5th Cavalry Division occupied Acre and Haifa, and on the **24th** the 4th Light Horse Brigade, after a sharp fight at Semakh, advanced to Tiberias. During the next two days, **25th** and **26th,** the Australian and 5th Cavalry Divisions concentrated at Tiberias, the 4th at Beisan, preparatory to an advance on Damascus.

During this second stage also of the advance (22nd-25th) the battle casualties in the Desert Mounted Corps were few; they occurred chiefly in the 4th Cavalry Division south of Beisan, where they were sustained in intercepting retreating bodies of enemy infantry, the 5th Cavalry Division at Haifa, and the Australian Mounted Division at Semakh. The work of the field ambulances lay chiefly in the transportation and care of the large numbers of sick prisoners, who were collapsing all along the line of retreat. In Jenin, which boasted a fully equipped German hospital staffed by trained army nurses, 300 enemy patients were found, and 360 in Nazareth. These, with the nursing staffs, were taken over. As many patients as were fit to travel were evacuated to Tulkeram. To keep pace with the lengthening lines of

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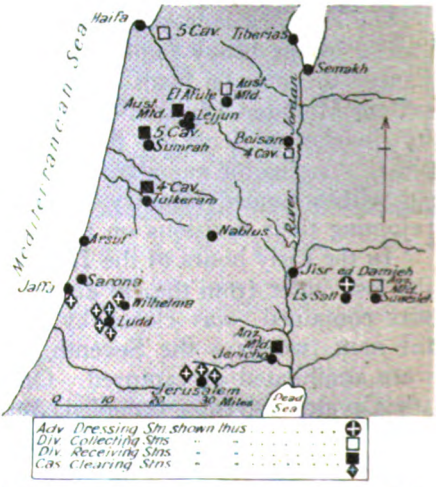
communication of the mounted troops, now extending for some fifty miles from Beisan to Tulkeram *viâ* the Musmus pass, the Australian Mounted Division receiving station was moved up to El Lejjun, and soon afterwards the 5th Cavalry Division receiving station was moved from Khurbet es Sumrah to El Afule, leap-frogging the Australian. Both evacuated all light cases through the Musmus pass,[8] *viâ* Sumrah, by returning empty supply motor lorries. Serious cases, brought to the Australian Mounted Division receiving station at El Lejjun in the divisional motor ambulances, went by heavy motor ambulance waggons—six of which were now attached to the corps—to the 4th Cavalry Division receiving station at Tulkeram, by the good road through Jenin and Messudieh. Thence they passed to the casualty clearing station at Wilhelma, and so to railhead at Ludd.



Medical situation in the Desert Mounted Corps, 24th September, 1918

By September 25th the infantry had reached the plain of Esdraelon, and on the 26th had occupied Haifa. To understand the subsequent course of events and the dramatic final stage of the advance and total overthrow of the Turkish force in Syria, it is necessary to turn to the Fourth Turkish Army east of the Jordan, attacked on the one side by Chaytor's Force and on the other by the Arab Army of Emir Feisal.

Jordan and East—"Chaytor's Force"

[8] It was sought at this time to carry evacuations down the shorter and better road through Jenin and Nablus to the casualty clearing station at Jerusalem, but the plan did not fit in with the arrangements of the D.M.S., E.E.F.

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The medical administration of Chaytor's Force devolved on the A.D.M.S., Anzac Mounted Division, Colonel D. G. Croll. In addition to the divisional medical units of the Anzac Mounted Division there were attached to this force the 1/1st Welsh and 157th Indian Field Ambulances, together with the Anzac Field Laboratory. A new operating unit was formed for the force from personnel of the 14th Australian General and 2nd Stationary Hospitals.[9] At the time of the advance the immobile section of one light horse field ambulance was in charge of the rest station at Jerusalem; the remaining two, with a section each from the 1/1st Welsh and 157th Indian Field Ambulances, formed the personnel of the Anzac Mounted Division receiving station. This unit, of a total strength of 8 officers and 145 rank and file, formed the pivot on which the system of evacuation for Chaytor's Force was based. Attached to it were the operating unit, the Anzac Field Laboratory, and a detachment from an Egyptian hospital. It was established on the site which had been occupied by the main dressing-station during the trans-Jordan raids, and which for several months had been held by different receiving stations. It had accommodation for 200 cases in stone and mud huts and for 400 more in tents. In the adjoining abandoned corps headquarters, which had been left standing, there was accommodation for 700. At one time during these operations the receiving station held 1,225 cases of sick and wounded, for whose accommodation tents were collected from the dummy camps left standing in the valley.

The activities of Chaytor's Force may be described briefly. On **September 19th** and the following three days demonstrations were made to the north on the west side of the Jordan Valley by the New Zealand Mounted Brigade and British West Indian troops. Casualties from this advance and from the capture, on the **22nd,** of the bridge-head at Jisr ed Damieh, which, as previously mentioned, closed the only remaining line of retreat of the Seventh and Eighth Turkish Armies, numbered seventy-two, who, with 400 sick, were evacuated by camels and motor ambulances to the divisional

[9] Equipment for the operating unit was supplied largely by the Australian Red Cross Society, help being also given by the American Red Cross Society.

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receiving station. On the **22nd** the Fourth Turkish Army, east of the Jordan, in danger of isolation from the north, began a retreat on Deraa, and Chaytor's Force was thrown across the Jordan in rapid pursuit. Advancing up the Jisr ed Damieh track, and encountering little opposition, the New Zealand Mounted Brigade occupied Es Salt on the evening of the **23rd.** The 1st Light Horse Brigade moved up the Umm esh Shert track and the 2nd round the south flank of the Shunet Nimrin position, which was then evacuated by the enemy. On the evening of the **24th** Chaytor's Force moved from Es Salt against Amman, which was captured by the mounted troops on the **25th.**

Medical work

With evacuation based on the divisional receiving station and passing *viâ* Ghoraniyeh bridge, the mobile sections of the field ambulances, leaving their wheeled transport at the foothills to follow by the Shunet Nimrim-Es Salt road, but taking the camel transport, climbed the hills by the Umm esh Shert and Jisr ed Damieh tracks, following behind the brigades. For the attack on Amman a divisional collecting station was established at Suweileh by the immobile section of the 1st Light Horse Field Ambulance and the Anzac (No. 7) Sanitary Section, both of which arrived there from Jerusalem after an exhausting march and was sent on by motor ambulance waggons. These had arrived early in the day (25th) preceded by the wheeled vehicles. On the fall of Amman a dressing-station was opened in the ruins of the Roman amphitheatre. Two enemy hospitals in the town held 480 cases, packed together on the floor, filthy and verminous. The number soon rose to some 1,000 or so from outlying enemy sick. They were evacuated with a Turkish medical staff to Jerusalem as soon as possible by motor lorries. In addition to the care of these prisoners the 1st Light Horse Field Ambulance admitted, up to September 30th, 268 sick and wounded light horse troops. Evacuation from Amman was now entirely by motor ambulance waggons—a contrast indeed to the first attack on the town. The sanitary section soon left the collecting station for its proper work, and found much to do.

The subsequent events in connection with this force may conveniently be told here. After the capture of the town

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the regiments were kept occupied in making the area untenable to the Turkish army advancing northward from the Hejaz. On **September 29th** the latter, numbering 4,500, surrendered to the 2nd Light Horse Brigade. There followed the unique picture of captured Turks, fully armed, holding a circular position in conjunction with their captors, whom they greatly outnumbered, to keep off the Arabs—the allies of the British—who were bent on looting and murder—to them the natural sequel to a victory. Five hundred seriously sick from these prisoners required evacuation.

On **October 1st** the 2nd Light Horse and New Zealand Mounted Brigades began their return march to Deiran near Ramleh, leaving the 1st Light Horse Brigade in and around Amman. During the last few days the sick rate had risen somewhat suddenly. The returning troops on their march back to Jerusalem, and coincidently those left behind in Amman, were struck by a heavy outburst of disease. During the ten days September 30th to October 9th 1,269 British and Indian troops were evacuated from Amman sick. In Amman this outbreak threw very heavy work on the divisional collecting station, which had been brought forward from Suweileh on September 30th. With its small personnel it had under its care at one time as many as 246 cases, the majority seriously ill. The greater part of the evacuation of these to Jericho was carried out by motor lorries, motor ambulances being available only for the most severe cases. The journey to Jericho, which took eight to ten hours by lorry and eight hours by motor ambulance, was too fatiguing to be accomplished in one stage, and it was therefore broken at a point two miles south of Es Salt. Here the Welsh Field Ambulance, which had been sent back from Es Salt, fed the patients and rested them for two hours. One group of motor ambulances worked between Amman and the Welsh Field Ambulance, another rearwards to Jericho. From the Anzac Mounted Division receiving station near Jericho motor lorries and a few cars of No. 35 Motor Ambulance Convoy carried out evacuation to a casualty clearing station at Jerusalem.

Oct. 1-9: outbreak of disease

The battle casualties sustained by Chaytor's Force were 27 killed, 7 missing, 105 wounded. Prisoners captured totalled

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10,322, among whom the sick rate was very heavy and, coinciding with the outbreak in the troops, threw a heavy strain on the medical service in all its departments.[10] Detailed consideration of these epidemics is conveniently deferred for the moment.

Main force—Sept. 25

To return to the main force now concentrating west of Lake Tiberias for an advance on Damascus. By General Allenby's new order, issued on the 25th, the Australian Mounted Division, followed by the 5th Cavalry Division, was to move from Tiberias to the crossing of the Upper Jordan at Jisr Benat Yakub (Bridge of Jacob's Daughters) and thence by the direct road to Damascus. The 4th Cavalry Division would cross the Lower Jordan and march *viâ* Irbid–Er Remte–Mezerib in order, if possible, to cut off the remains of the Fourth Turkish Army now retiring from Chaytor's Force and closely pursued by the Arabs. It was evident that evacuation to Tulkeram, 140 miles from Damascus, would be impossible with the number of motor ambulances possessed by the corps. Nazareth, forty-one miles nearer Damascus, though nine miles from a railway, appeared the obvious place on which to base evacuation, since it contained already organised hospitals in good stone buildings and the line of supplies at this time passed through it. The line of evacuation from it would depend entirely on whether supplies were to be brought from Haifa after sea transport, or *viâ* El Afule from the advanced base. Accordingly on the **25th** and **26th** the Australian and 5th Cavalry Divisions' receiving stations were brought up and the hospital accommodation thoroughly organised under the D.A.D.M.S., Desert Mounted Corps, Major A. Leggat, R.A.M.C. The fine French and Austrian hospitals, and the inferior German, were taken over by the Australian units, and a large Carmelite monastery was organised for 600 by the 5th Cavalry Division receiving station. The personnel of a casualty clearing station was to be sent from the base by the D.M.S., E.E.F., and medical stores by sea to Haifa. Casualties from the 4th Cavalry Division were at this time held in its divisional collecting

[10] The Anzac Mtd. Div. receiving station, through which all the sick and wounded passed, treated, in addition to 7,095 sick from the Force, 1,346 Egyptians and 1,277 prisoners of war—a total of 9,718 sick.

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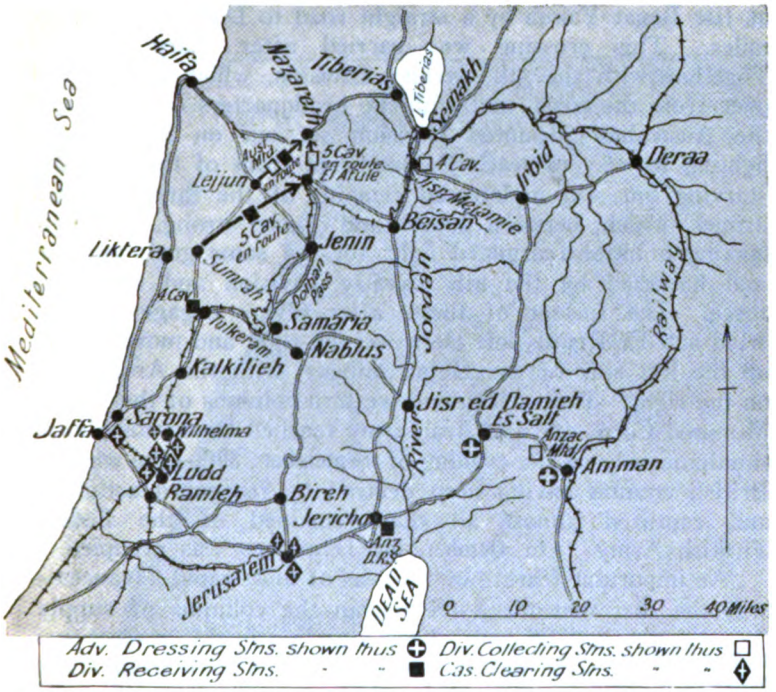

Medical situation in the Desert Mounted Corps, 26th September, 1918

station at Jisr el Mejamie, where they remained until the repair of the railway to El Afule, whither the 4th Cavalry Division receiving station was sent on the 28th.

Up to this time the number of wounded had been small, and that of sick also inconsiderable.

Meanwhile the formations of the Desert Mounted Corps had entered on their final dash to Damascus. The advance was made in two converging lines, with the object of intercepting the remains of the Fourth Turkish Army now approaching Deraa with the Arabs in pursuit. The 4th Cavalry Division moved from Beisan on the 27th and made direct for Deraa, the distance to Damascus being 120 miles. The Australian Mounted Division moved by a western route which ran from the crossing of the Jordan

Sept. 27–Oct. 1—the dash to Damascus

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at Jisr Benat Yakub by a straight road to Damascus—ninety miles. This crossing was carried after sharp fighting. Together with the 5th Cavalry Division, which had moved over from the coast, and with the headquarters of the corps, the Australian Mounted Division set out on its task of fighting its way to reach Damascus in front of the sick and starving but still undefeated remains of the three Turkish armies, which, between 20,000 and 30,000 strong, was now making a bitter rearguard fight for the same goal, pursued and harassed by the 4th Cavalry Division and the Arab force. The former of these, after severe engagements at Irbid and Er Remte, left Deraa on the right and moved north up the left side of the Hejaz railway, with the Arab force on the right. The eastern and western columns of the Desert Mounted Corps and the Arab army reached Damascus almost simultaneously on the evening of **September 30th**—the western British column having been delayed by rearguard actions—and captured almost all that remained of the Fourth Turkish Army. On **October 1st** Damascus was occupied.

An important feature of this—as of most rapid advances—was the fact that the force outran the columns of supply.

Difficulties of services of maintenance

The crux of the situation in this respect was the damage done to the railway from Haifa to Semakh, and the very bad condition of the road from the Jordan at Jisr Benat Yakub for two miles towards Kuneitra. The medical service being, equally with supply, dependent on the existence of roads or railways for carrying out its function, was affected in like manner; and in its case there was added the fact that its special transport—in the form of motor ambulance waggons which alone could cope with the problem of clearing serious cases along the lines of communication—was totally inadequate to the demands. When the final dash to Damascus was begun, the supply route ran from Haifa *viâ* Nazareth to Tiberias, and thence across the Jordan at Jisr Benat Yakub and so to Kuneitra; the eastern force was supplied through Semakh from Tiberias. Fed by returning lorries of supply, the hospital accommodation at Nazareth filled rapidly, but cleared slowly. At the same time the situation as regards evacuation both to and from this, the forward hospital centre.

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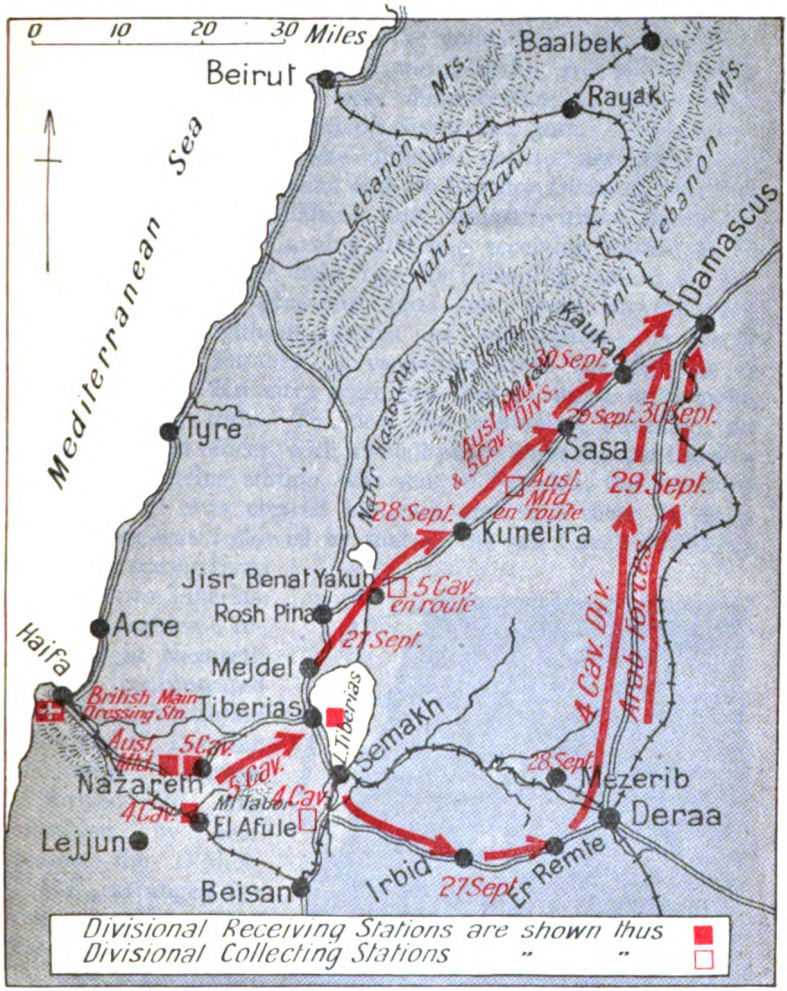

THE ADVANCE OF THE DESERT MOUNTED CORPS, SHOWING THE MEDICAL SITUATION ON 30TH SEPTEMBER, 1918

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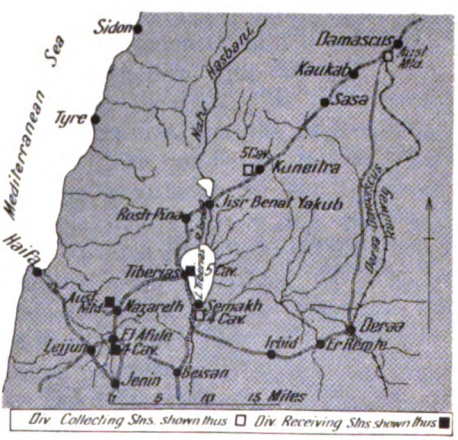
became gravely prejudiced, the town indeed being rendered valueless for that purpose by an unexpected change in the route of supply which was to be coincident with the repair of the railway between Haifa and Semakh, and which, after a period of uncertainty very disconcerting to the medical service, was put into effect on September 30th. The medical situation at this date was difficult, not to say precarious. At Nazareth the Australian and 5th Cavalry Division receiving stations held 500 casualties, now almost without means of evacuation; the 4th Cavalry Division receiving station at El Afule held 150, its collecting station at Jisr el Mejamie 120; both were for the time without means of evacuation. A large number of casualties from the fighting at Kuneitra were expected to arrive at Semakh on September 30th. To meet the immediate situation, an Indian medical officer, with a small party from the 4th Cavalry Division receiving station, was sent to Semakh; the receiving station itself was cleared by train and sent there to open. This move was followed by that of the 5th Cavalry Division receiving station from Nazareth to Tiberias, the casualties remaining in Nazareth being concentrated in the Australian Mounted Division receiving station. Apprised of the situation by telephone, the D.M.S., E.E.F., arranged for the evacuation of the cases from Nazareth by motor ambulance convoy, for the obtaining of medical stores by special transport, and for the sending up of a third operating team; the casualty clearing station intended for Nazareth was deflected to Haifa.

Medical situation becomes critical



Medical situation in the Desert Mounted Corps, 1st October, 1918

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By this time the Desert Mounted Corps was in Damascus, where it was soon face to face with a remarkable situation presently to be described. Along the route of both columns collections of wounded and (now in increasing numbers) sick were held in the collecting stations or in small centres along the route, evacuated, as opportunity arose, by motor lorries of supply. Slight cases went to Tiberias or Semakh.[11] From the Jordan to Kuneitra the road was found to be so bad that it had been decided to take all the serious cases on to Damascus, and the A.D.M.S., Australian Mounted Division (Colonel R. Fowler), was instructed to take over a building suitable for the purpose as soon as possible after arrival in that town.[12]

Evacuation stopped

[11] On Oct. 1 cholera broke out among the civil population in Tiberias. The only line of communication of the force ahead ran through this small town, and the outbreak was therefore a distinct menace. The D.A.D.M.S., Desert Mtd. Corps, was sent from Nazareth to deal with it: rigorous measures were taken, and the epidemic was quickly stamped out. Only one white trooper was affected.

[12] For the medical service this advance from Jaffa to Damascus presented one important analogy with that from Beersheba to Jaffa, namely, the demonstration afforded by events at Ameidat and Nazareth of the importance of close relations between the Medical Department and the "Q" Branch.

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CHAPTER XII

THE ADVANCE THROUGH SYRIA

THE last phase of the Palestine campaign was marked by a sudden outbreak of sickness which placed out of action nearly half of the Desert Mounted Corps and actually stopped the advance of one division. The nature of this epidemic as regards the degree of prevalence of pneumonic influenza (a wave of which, advancing from the West, had just reached Syria) and of malaria respectively cannot be unequivocally defined. The evidence adduced tends to show that the epidemic was in the main malaria, due to infection of the troops sustained for the most part when advancing through regions which had not been subjected to anti-mosquito measures such as those enforced behind the British lines.

* * *

Damascus, a town of some 250,000 inhabitants, was occupied early in the morning of October 1st. Owing to the disturbed state of the city and the confused political situation orders were given that no medical units were to enter, and it was not till the following day that the first medical unit did so.

As the next few days were to show, this order proved very unfortunate; for the time lost on the first day was irredeemable. The number of British casualties requiring treatment at this time was inconsiderable, but there was a very large number of Turkish sick and wounded, whose condition was truly appalling. On the order of the corps commander (Lieutenant-General Sir H. G. Chauvel), the care of these was made the first duty of the medical service.[1] They were found scattered throughout the city—chiefly at the Beramkie Barracks, and in the Merkaz and Babtuma groups of hospitals.

Damascus—3,000 Turkish patients

[1] They were found housed in six groups of hospitals, the largest number, about 900, being in the large *Beramkie Barracks* on the south of the town. This building was in an indescribable condition of filth, and the patients, mostly sick, were in a state of utter neglect. There were some beds, but many patients lay on the floor, and numerous dead, some partly decomposed, lay among the living. Such sanitary conveniences as existed were of little use, and evidently most of the Turks had for some time made no pretence of using them, preferring the windows and floors of

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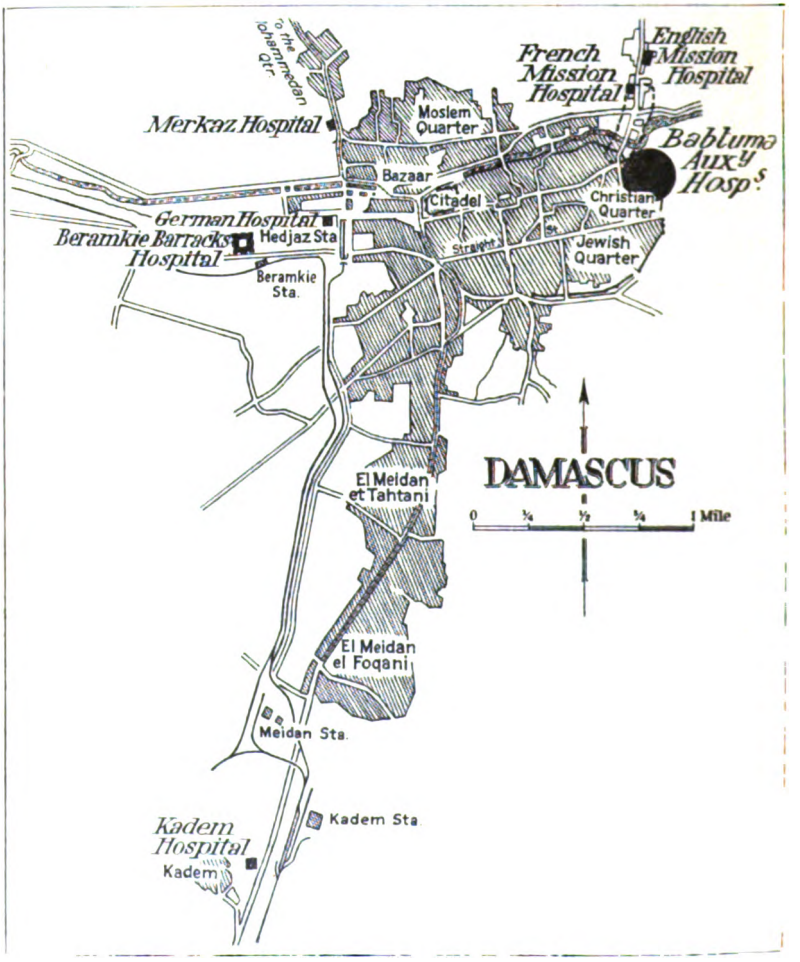
the wards. The stench in the building was loathsome. There was no food, and it was stated that the patients had had none for several days: there were no drugs, very little equipment, and no staff beyond seven Syrian doctors, who, without equipment or nursing staff, could do practically nothing. On the opposite side of the town, at *Babtuma*, was a group of hospitals, containing in all 600 beds, which the Turks had worked as one unit. To these a pivot was formed by an English and a French hospital in two buildings, in which the doctors and nursing sisters lived and from which provisions and medical stores were issued. The English hospital of 130 beds was a fairly good building in excellent grounds, but its sanitation was designed on Oriental rather than English lines and it had lost most of its pre-war equipment. It was staffed by three Syrian doctors—who disappeared in a few days—a dispenser, two Turkish nurses, and thirty semi-trained local nurses. There were also three English nurses, who had been brought from



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Immediate measures

The following steps were taken by the D.D.M.S., Desert Mounted Corps, to deal with the situation. The D.A.D.M.S. of the Australian Mounted Division (Major W. Evans) was appointed Principal Medical Officer of Damascus, with the duty of organising the arrangements for the care of sick and wounded prisoners. Prisoners were set to work to clean up the Beramkie barracks and to bury the dead: Turkish army doctors and orderlies were collected and, with local girls to act as nurses, were installed in this hospital, to which, or to the Merkaz hospitals, the 1,137 patients from near the Kadem railway station were sent. The Turks in the English and French hospitals of the Babtuma group were transferred to the auxiliary hospitals there, the Germans to the German hospital at Beramkie. To each prisoner-of-war hospital a light horse combatant non-commissioned officer was attached to act as quartermaster and general organiser of the mixed Armenian, Syrian, Turkish, and Greek staff. It was remarkable how rapidly these men took control of the situation and changed chaos into order.

The transfer of the enemy sick was made difficult by the poor quality of the roads through the town. There was good access to the Beramkie barracks and German hospitals on the south of Damascus and to the Merkaz hospital in the

Nazareth by the Turks, and who gave most devoted service to the sick. The French hospital was a better building, holding 107 beds with one doctor, a dispenser, seven Sisters of Mercy, twenty semi-trained nurses, and a dishonest quartermaster. There were eighty empty beds in these two hospitals. In addition fifteen houses scattered about in the neighbourhood contained 400 slightly sick patients, who were without food and had very few medical stores, but sufficient nurses for their attention. Another collection of sick had been made in a building close to the *Kadem* railway station, which is situated three and a half miles from the centre of Damascus at the end of a narrow prolongation of the south-east part of the town. Here four Turkish medical officers and a few orderlies without equipment attended to 1,137 cases, many of whom were found moribund. Most of the seriously wounded Turks were discovered in the *Merkaz* hospital, situated in the heart of the town. This hospital was fully staffed with doctors and untrained nurses, but the Turkish Commandant was incompetent, there was very little food, and most of the medical stores had been removed to Aleppo—or stolen. All of its 650 beds were occupied. A German hospital in two buildings at *Beramkie* carried 350 beds, of which sixteen contained captured Australian wounded, the remainder Germans. For the care of these there were one German medical officer, two German nurses, two girls, and thirteen German orderlies. (It should be mentioned that, though sick himself, this medical officer continued for some time, in an admirable manner, to attend to all these sick.) There was in addition a civil hospital, but it held no soldiers. In all, in scattered buildings in the town, were found some 3,000 enemy sick and wounded receiving wholly inadequate attention.

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centre, but the road to the hospitals at Babtuma in the east was very rough and full of deep holes, and led through a narrow and crowded bazaar. The road from Kadem station was also bad, the tramway rails projecting several inches above the surface. It was also very narrow, and, where it ran through the centre of the town, was crowded with noisy and excitable inhabitants of many races.

Difficulty of evacuation and supply

For evacuation out of the town there was only one narrow and winding road, running to the south-west and crossing a narrow bridge which broke down several times and was only wide enough for one vehicle. Most of the troops were camped along this road, on the outskirts of the town, and, since it was the only route by which they and the motor supply lorries from Semakh railhead could reach the town, it was frequently blocked. To add to the difficulty of evacuation, many of the motor ambulances had broken down, and the supply of petrol very soon ran out.

The French and English hospitals were allotted for patients of the Desert Mounted Corps who were seriously ill, a British operating team (which arrived on October 12th) being placed in charge of the former and a detachment of the 3rd Light Horse Field Ambulance of the latter. Slight cases were sent to the Australian Mounted Division collecting station encamped in and around a building at El Mezze.

The most difficult problem was the provision of food and medical comforts, the conditions on the lines of communication being such that a regular service of supply could not be maintained.[2] It was not till October 5th that the former became adequate for the time being. Much was obtained by local purchase through the agency of British officers attached to the Sherifian army, but the roguery and absolute unreliability of the native vendors made this source of supply very unsatisfactory. Though often a source of

[2] From Semakh to Damascus was ninety miles, and the journey occupied up to three days by motor lorry. So bad at first was the stretch—less than a mile—leading up from the crossing of the Jordan at Jisr Benat Yakub, that the average time occupied by lorries in negotiating it was from a day to a day and a half.

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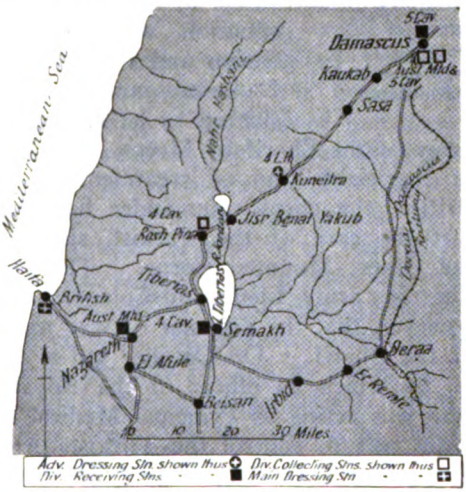
anxiety, medical stores never entirely ran out: there was always a supply of the few drugs and the dressings that were really essential.[3]

Because of the difficulty of evacuation, seriously ill British and all enemy sick were retained in Damascus. Slightly ill British were sent by motor lorry to Semakh, but the journey was so fatiguing that it was divided into stages. The first stage (forty-two miles) was to Kuneitra, where the mobile section of the 4th Light Horse Field Ambulance took over the patients for the night; the second to Rosh Pina, whither the 4th Cavalry Division collecting station had been hurried from Semakh; the third to Semakh itself, where the 4th Cavalry Division receiving station received and entrained the cases for Haifa, about fifty miles distant. Here, after the journey of 140 miles, they were cared for by a British field ambulance till they could be taken by sea to Egypt. There was great difficulty in obtaining motor lorries for the evacuation of sick and wounded, in consequence of the demand for their use in evacuating prisoners, whose number (over 10,000 in the Damascus area) threatened a crisis in the food supply. Eventually it was arranged that returning ammunition lorries—available only at very irregular intervals—should be used for the sick and wounded, and supply-lorries for the prisoners of war.



Medical situation in the Desert Mounted Corps, 6th October, 1918

[3] Information as to the situation of a well-equipped German dépôt of medical stores worth several thousands of pounds was purchased for three sovereigns. The dépôt contained an excellent supply of drugs and equipment, but, being put perforce under the charge of the Sherifian army, a great deal of these stores promptly disappeared. A lorry load was despatched from Ramleh, but lost its way and took several days in arriving. A supply was also brought up in aeroplanes.

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Political factors create difficulties

In organising the care of the enemy sick an additional difficulty was caused by what may be called the political situation, which for some days led to confusion and waste of valuable time. Briefly, Damascus and everything in it were considered to be in the possession of the Arab army of the Sherif of Mecca. Realising that the Arab idea of the right kind of treatment of prisoners was not the British, the corps commander had laid down at the outset that the care of the Turkish sick was a responsibility of the Desert Mounted Corps. The British adviser with the Sherifian army, Lieutenant-Colonel T. E. Lawrence, contended, however, that the prisoner of war patients were the property of the Sherif. On October 5th a compromise was arrived at, by which an officer of the Royal Army Medical Corps who was acting as Principal Medical Officer of the Sherifian army was to control the Turkish prisoner of war hospitals under the D.D.M.S., Desert Mounted Corps. A further complication was engendered by the action of the Military Governor of Damascus (nominated by the Sherifian army), who intimated to the Sherifian medical officer that he was to control all enemy hospital patients and was not to consider himself responsible to the British D.D.M.S. On hearing of this, the corps commander issued a written order that the Desert Mounted Corps was to be considered responsible for all enemy patients, except those in the Merkaz and civil hospitals. A general staff officer was appointed to act in collaboration with the medical authorities to take off their hands all questions of rationing, burial of the dead, transport, supply of labour, and relations with the Sherif's army. In addition a light horse officer, with some non-commissioned officers, was attached to each prisoner of war hospital.

Shortage of medical units

It should be realised that the medical services now with the corps comprised only the mobile portions of the field units with the cavalry divisions; that even of these nearly one-quarter were relayed along the long lines of communication; and that all were now below strength from sickness. The immobile sections did not arrive till considerably later,[4] and

[4] *See pp. 737-8.*

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no line of communication units whatever. In looking after the sick and wounded from their own divisions alone the medical services had as much to do as they could compass satisfactorily; adequate care and rationing of this large number of sick and wounded prisoners was beyond their capacity, and necessitated calling in the help of non-medical military personnel. Had Damascus been under the control of the British and in an organised condition, the task would not have been so difficult; but in a town which, on its capture, was without government or reserve of food and in a wild state of chaos, it took several days to introduce order and system. Moreover the members of the staffs responsible for the task were wearied with the immense strain of the advance; not a few were actually ill, and all were further occupied in the heavy work of administering the arrangements for the sick of the fighting forces. By the evening of October 5th, however, the medical situation was for the moment under control. Medical personnel left on the route in receiving and collecting stations and detached details were on the march to Damascus; a supply of medical stores and comforts was also on the way.

Advance resumed

On this date the advance north was resumed. On the fall of Damascus the War Cabinet had directed the Commander-in-Chief to occupy Aleppo and western Syria. Though the remnants of the Turkish Army were not likely to give much trouble, the problem of supply was sure to be a very difficult one. The first step in the advance towards Aleppo was the occupation of the line Beirut-Rayak, and on **October 5th** the 4th and 5th Cavalry Divisions moved out from Damascus toward Rayak and Moallaka, the Australian Mounted Division being left behind to keep order. At the same time the XXI Corps was moving up the coast from Haifa on Beirut.

Coincidently with this move there broke out with startling suddenness an epidemic of malaria (malignant tertian) and influenza. Reaching the vicinity of Rayak in the plain between the Lebanon and Anti-Lebanon mountains, the 4th Cavalry Division—which had borne the heaviest share in the

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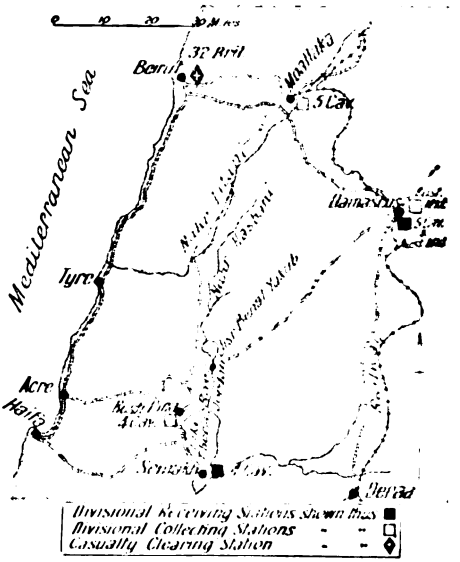
burden and heat of the advance—became immobilised by its losses through sickness, there being barely sufficient men to feed the horses. The 5th Cavalry Division alone was able to continue the advance, though this too was greatly under strength. Rayak and Moallaka were occupied by it on **October 6th** and Beirut by the infantry on the **8th.** The second step, the occupation of the Homs - Tripoli line, was completed by the **16th,** when the 5th Cavalry Division entered Homs, the XXI corps having reached Tripoli on the **13th.**



Medical situation in the Desert Mounted Corps, 14th October, 1918

Medical crisis in Damascus

Meanwhile in Damascus, and equally along the lines of communication, epidemic disease had assumed startling proportions. At Damascus the medical situation had become in the course of a few days about as bad as it was possible to be: accommodation, equipment, and medical personnel were hopelessly inadequate for the inrush of cases from the outbreaks. The French and English hospitals, with 247 beds and skeleton staffs, soon had 625 patients. It was impossible to send all the seriously ill to these hospitals, as was originally intended, for practically all sick at this time were serious cases. This factor in itself added enormously to the normal obligations of the medical services. Orders were given to the mobile sections of field ambulances to send no more patients to the now overcrowded hospitals; but from the regimental lines of the Desert Mounted Corps sick in large numbers were sent by their own regimental officers direct to the hospitals.

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110. The Anzac Field Laboratory at Bir el Abd, Sinai, 1916

The hut consists of canvas sheeting stretched on wooden framework.

Lent by Capt. R. J. Hunter, A.A.M.C.
Aust. War Memorial Collection No. B2849.

111. A dentist at work during the Palestine offensive, 1917

Photograph taken at El Burj on 1st December, 1917. The dentist is Captain F. A. Comins.

Lent by Major R. G. Woods, A.A.M.C.
Aust. War Memorial Collection No. A2734.

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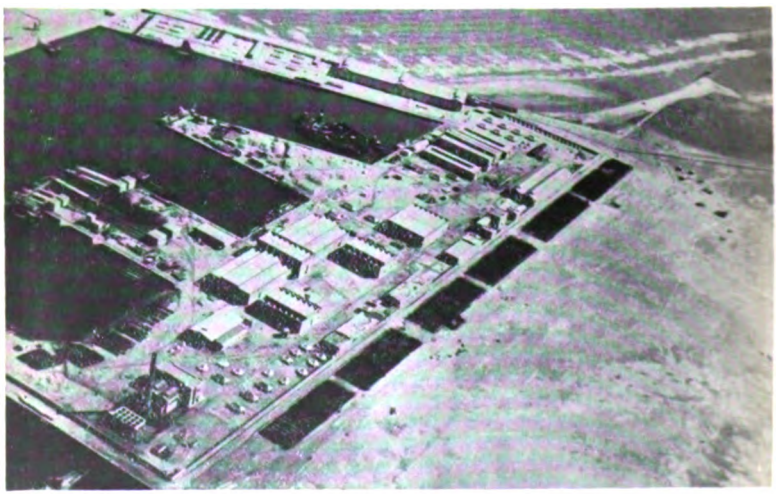
112. The Desert Mounted Corps Operating Unit at Homs, Syria

Aust. War Memorial Official Photo. No. B1071A.



113. An aerial view of No. 14 Australian General Hospital at Port Said

Aust. War Memorial Official Photo. No. B689.

To face p. 737.

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There was soon a shortage of medical comforts; local supplies of foods suitable for light diets were quite inadequate. Without facilities for disinfection blankets and mattresses had often to be destroyed, and supplies ran short. The conditions at the 5th Cavalry Division receiving station, which had taken over a building on the south-western outskirts of the town, were lamentable. As the result of the failure of the motor lorries detailed on the previous day to evacuate a large number of patients, there remained in this unit on **October 11th,** from 800 to 900, of whom a large number were seriously ill, chiefly with broncho-pneumonia and malignant malaria, and deaths were numerous. Some cases of malarial diarrhœa were diagnosed as cholera, and it was not until the **12th,** when a malarial diagnosis station arrived, that their true nature was discovered.[5] By this time the staff of the 5th Cavalry Division receiving station had dwindled to three officers and between thirty and forty men, mostly Indians, and all were more or less exhausted. The accommodation, feeding utensils, and sanitary material were sufficient for only a fraction of the patients. Moreover, the supplies of medical comforts and blankets were inadequate. Some help was given by employing Turkish prisoners, though they were of little use, but the attention that could possibly be given to the sick was meagre and their discomforts were very great.

Medical services at utmost stretch

When conditions were at their worst, the G.O.C., Australian Mounted Division, was prevailed upon to supply 100 light horsemen to act as medical orderlies, and on October **12th** the evacuation of a large convoy of sick by motor lorries and the arrival of a supply of milk somewhat relieved the situation. The Australian Mounted Division receiving station, arriving that evening, relieved the exhausted 5th Cavalry Division receiving station, which during the week had admitted 1,560 British and Australian sick out of the total of 3,150 admitted by all the medical units. The number of Turkish sick in the Babtuma hospital had risen from 900 to 2,000.

[5] By an unfortunate chance the divisional receiving station which arrived first in Damascus (the 5th Cav. Div.) was the only one of the three to which a malarial diagnosis station had not been attached.

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The difficulties of the medical services during this eventful time were greatly increased by sickness among their own personnel, which, as a consequence of their continued exposure to infection and of overwork, was greater than in the combatant units. The wastage in the rank and file was the more embarrassing since the establishment of the Combined Cavalry Field Ambulances included but few R.A.M.C. personnel, the majority being Indians, while no reinforcements were arriving. The loss of administrative officers was also very crippling.[6]

Sickness in medical units

Though for some time the inflow of cases showed little abatement, gradually progress was made by the medical services, inadequate though they were, in organising the various medical institutions in Damascus. In the meantime also the difficulty of evacuation from Damascus and from the advancing divisions was lessened when, after the occupation of Beirut, a Combined Clearing Hospital landed there on **October 11th.** Evacuation to Semakh was then gradually stopped, but it took some days before systematic clearance from Damascus to Beirut *viâ* Moallaka could be arranged.[7] The first patients from Damascus went the whole distance of seventy-one miles by motor lorries which were on their way to Beirut to fill up with supplies now being landed at that place. A little later, as soon as the trains could be

New medical base—Beirut

[6] The 4th Cav. Div. receiving station on the march up to Damascus was unable to move for eight days owing to illness; in the 4th Cav. Div. only two motor ambulances had drivers. The majority of medical officers were sick but had to keep on duty as long as they could stand. There was at one time a shortage of 23 in an establishment of 99 medical officers in the three divisions: one ambulance in the 4th Cav. Div. had all its officers evacuated from sickness, and they were not replaced. The D.D.M.S. of the corps became *hors de combat* on October 6th, and, as the D.M.S., E.E.F., was unable to supply an officer to replace him and there was no divisional A.D.M.S. available for that purpose, for the next eight days he did what he could while remaining sick in corps headquarters. The A.D.M.S., Aust. Mtd. Div., was ill in bed, as was his D.A.D.M.S. The A.D.M.S., 4th Cav. Div., was evacuated, and his successor was immediately sent to hospital. The A.D.M.S., 5th Cav. Div., alone remained well, and, as his D.A.D.M.S. had died, it was necessary for him to remain with his division, which was then advancing.

[7] From Damascus the Beirut road, running in a westerly direction over the Anti-Lebanon range, is fair. It then crosses a plain between the two ranges and ascends the Lebanon range. The road up the eastern side of the range, after a blown-up bridge had been repaired, was good. It was, however, very steep and winding for several miles; the descent to the coast, involving numerous sharp turns, was even more dangerous, in some cases being too much for the brakes of the motor ambulances.

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run from Beirut towards Aleppo, sick from Damascus were sent by train to Moallaka, west of the Anti-Lebanon range, where the 5th Cavalry Division collecting station—left there on the march north to Rayak—held casualties until they could be evacuated by motor lorries or ambulances to Beirut, a distance of thirty-two miles.[8] As soon as the 4th and 5th Cavalry Divisions reached the Rayak-Moallaka area they were ordered to stop evacuation of sick to Damascus and to hold till the evacuation route to Beirut should be opened.

In this way it became possible by **October 14th** to relieve the units in Damascus of many more patients, whereupon the medical situation there quickly became normal, and by the **16th** evacuation quite satisfactory.[9] The situation was still further helped by the action of the D.M.S., E.E.F. —still stationed at Ramleh—who had been asked to send a representative to see the deplorable conditions in Damascus. As the result of a visit on the 11th by his A.D.M.S., he sent 100 R.A.M.C. privates who had previously been returned to Egypt for transfer to France as infantrymen, but had been recalled. These arrived in Damascus on the 18th. On the following day eighteen cars of the Motor Ambulance Convoy arrived, and on the **25th** a casualty clearing station, which two days later took over the cases of the Australian Mounted Division receiving station. The English, French, and German hospitals gradually transferred their patients to the casualty clearing station, and were then closed. Owing to lack of accommodation for sick prisoners of war in Egypt, those in Damascus were now retained there, and early in November the administration of the sick in that town was handed over by the Desert Mounted Corps to Lines of Communication Headquarters.

Oct. 16—Situation again normal

Meanwhile in the north the final phase in the offensive in Palestine and Syria had come to its end, and the great advance—and the war—fizzled to its drab and dreary aftermath. The third stage in the advance beyond Damascus, namely, that made

Last days of the war

[8] There was a quaint narrow-gauge cog-wheel railway running over the Lebanons, but this had been damaged by the Turks and could not be repaired for some time.

[9] On this day the 5th Cav. Div. receiving station, reinforced and somewhat recuperated, arrived at Moallaka.

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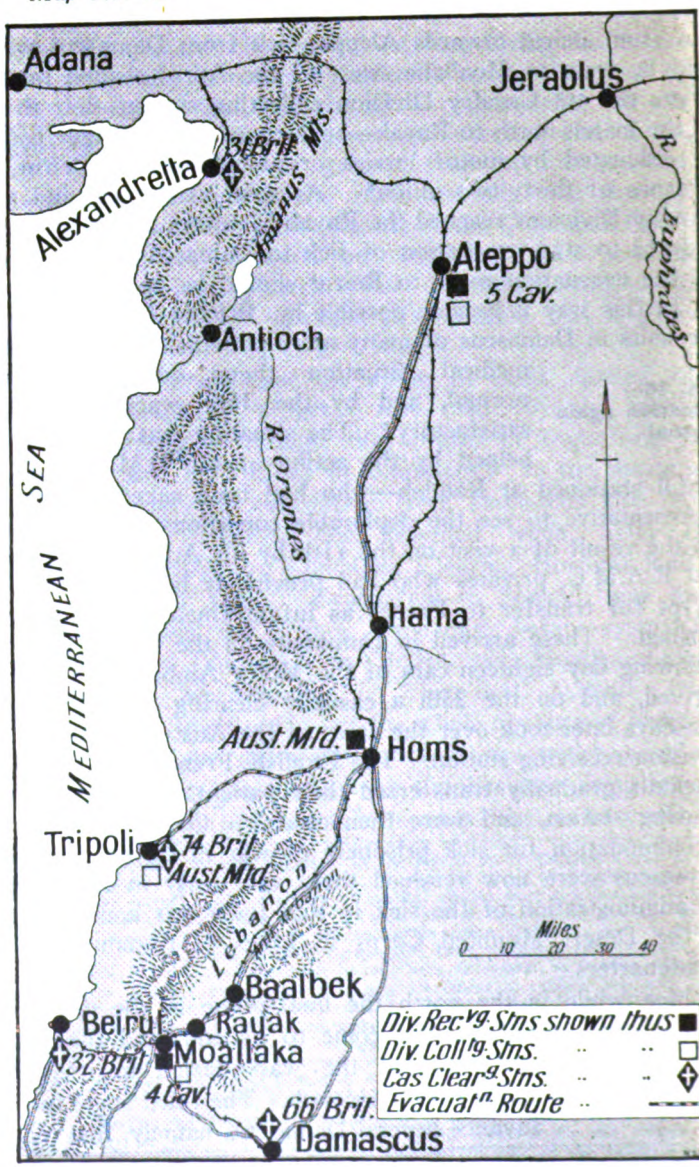
Map No. 22



NORTHERN SYRIA—DAMASCUS TO ADANA, SHOWING ROUTE OF EVACUATION AFTER ARMISTICE DECLARED

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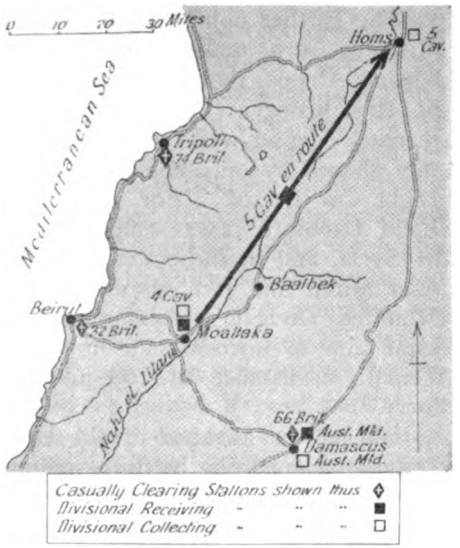
by the 5th Cavalry Division to Aleppo, 120 miles from Homs, was a bold project for one weak formation, when the enemy force was known to amount to some 20,000. Nevertheless, with the co-operation of the Armoured Car Patrol and the Sherifian army, the town was occupied on **October 26th.** The final advance on Alexandretta, the northernmost town of Syria, the 5th Cavalry Division was now too weak to undertake alone, and on the **27th** the Australian Mounted Division marched out from Damascus in its support. It moved, however, only as far as Homs, which it reached on **November 1st**—the day after the granting of an armistice with Turkey. After a few days at Homs the Australian Division marched to Tripoli, where it remained till the final move to Egypt.



Medical situation in the Desert Mounted Corps, 24th October, 1918

Oct. 31—Armistice with Turkey

Evacuation during the final stages of the advance by the mounted formations was based on Tripoli. From Homs, which is ninety-two miles north of Moallaka, and at which the Australian Mounted Division receiving station was established, a road runs to Tripoli fifty-two miles distant. On **October 22nd** a casualty clearing station was landed at this port, so that by the use of some of the motor ambulance convoy cars and motor lorries evacuation from the 5th Cavalry Division was carried out by this route. After this division had advanced another seventy miles, past Hama towards Aleppo, further casualties were not evacuated southwards but were taken on to Aleppo.[10]

[10] It may be noted that cacolet camels, which were first required for the transport of sick in the sand of the Sinai Desert, were taken as far north as Aleppo and were still found very useful.

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The further doings of the medical service with the Desert Mounted Corps and the problems with which they met in and beyond Aleppo, though of no little interest, do not form part of this history. The only Australian medical unit that reached Aleppo was the Anzac Field Laboratory—a distinction shared by only one other unit in the A.I.F., the No. 2 Light Car Patrol. For some time after the Armistice the Field Laboratory was employed in Aleppo and other parts of Syria, and in the course of its service reached Aintab in Asia Minor and Jerablus on the Euphrates. The Australian Mounted Division receiving station remained at Homs for some time to form a stage in the evacuation from Aleppo to Tripoli, a distance of 168 miles by motor ambulance and lorry.

During the advance of the Desert Mounted Corps from Jaffa to Aleppo the battle casualties had been 149 killed, 49 missing, and 438 wounded, far fewer than had been expected.

The cost of victory and of defeat

But during that period of nine weeks the mobile sections of field ambulances recorded admissions of more than 11,300 sick, or 41 per cent of the corps.[11]

The severity of the sickness among the British and French troops in Damascus is shown by the death of 479 such patients. Among the sick prisoners the mortality was very heavy. Of 10,346 admitted by the field ambulances and Damascus hospitals, between 1,400 and 1,500 died, and this number represents only a small part of the mortality. Many died on the lines of march, and at a prisoner-of-war camp near Damascus, containing at the outset 10,000 prisoners, deaths for some time took place at the rate of from 70 to 170 per day.

From the point of view of the medical service far and away the most striking feature of these operations was the outbreak of sickness at Damascus. General Allenby's original orders provided for an advance to Nazareth. Had that been its end, there would have been little difference, except in degree

Summary and comments

[11] Actually the number was considerably greater, since many were admitted direct to receiving stations and hospitals in Damascus without passing through the mobile sections, and of these there is no record. The fact that out of a total of 438 wounded only 200 appear in ambulance records also shows that, in the stress of more important duties, many admissions were not recorded.

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(heightened by the epidemic outburst), between the problem thus put before the medical service and those faced in the earlier operations of the campaign. The decision to continue to Damascus, 150 miles from the medical base, changed the situation fundamentally, since it left the Desert Mounted Corps to face the certainty of heavy sickness from malaria with only the medical units provided for collection and early stages of evacuation, without appropriate means to bridge such distance and yet without possibility of increasing this personnel. Much discomfort to the sick and wounded was therefore inevitable and was one of the prices of victory, a fact which doubtless had not been overlooked by the Commander-in-Chief. In any case, had it been possible to foresee the influenza and other factors in the medical catastrophe at Damascus, the military situation would have prevented any appreciable increase in the medical units provided for the Desert Mounted Corps.[12] War is not a humane proceeding. Victory is its goal, and, if victory can be attained at the expense of much individual suffering while it cannot be attained without it, then it must be pursued and the price paid. This principle is often forgotten, and, curiously enough, sometimes—after victory has been attained—most forgotten by those who have been the instruments in its attainment. As it was, the medical personnel of the field units of the Desert Mounted Corps, much reduced by wastage, were called on to grapple with a situation that required considerable and well-organised establishments of base medical units. It is indeed an arresting feature of the situation that, by putting into practice true military principles, this personnel, though deprived through illness and death of much of its normal administrative guidance, was able to remedy with comparative rapidity a difficult and very serious situation.

Undoubtedly mistakes were made: human fallibility is universal, and its results do not necessarily provide lessons. One lesson, however, may be discerned which is of universal significance, namely, the degree of achievement in

[12] Actually the D.D.M.S. had, prior to the advance, made application for a mobile casualty clearing station for just such an emergency as did occur at Damascus.

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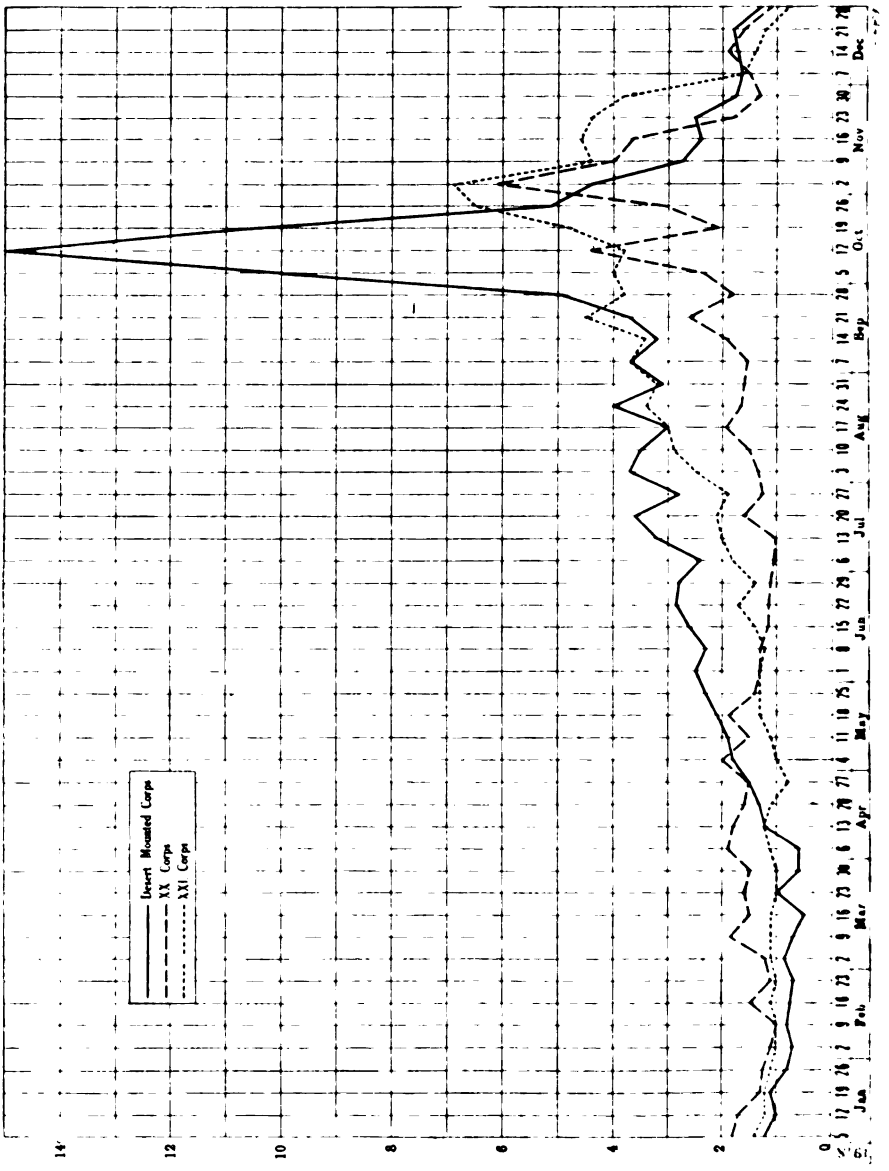
Graph No. 15

WEEKLY RATES PER CENT OF STRENGTH, OF SICK EVACUATED FROM THE XX, XXI, AND DESERT MOUNTED CORPS



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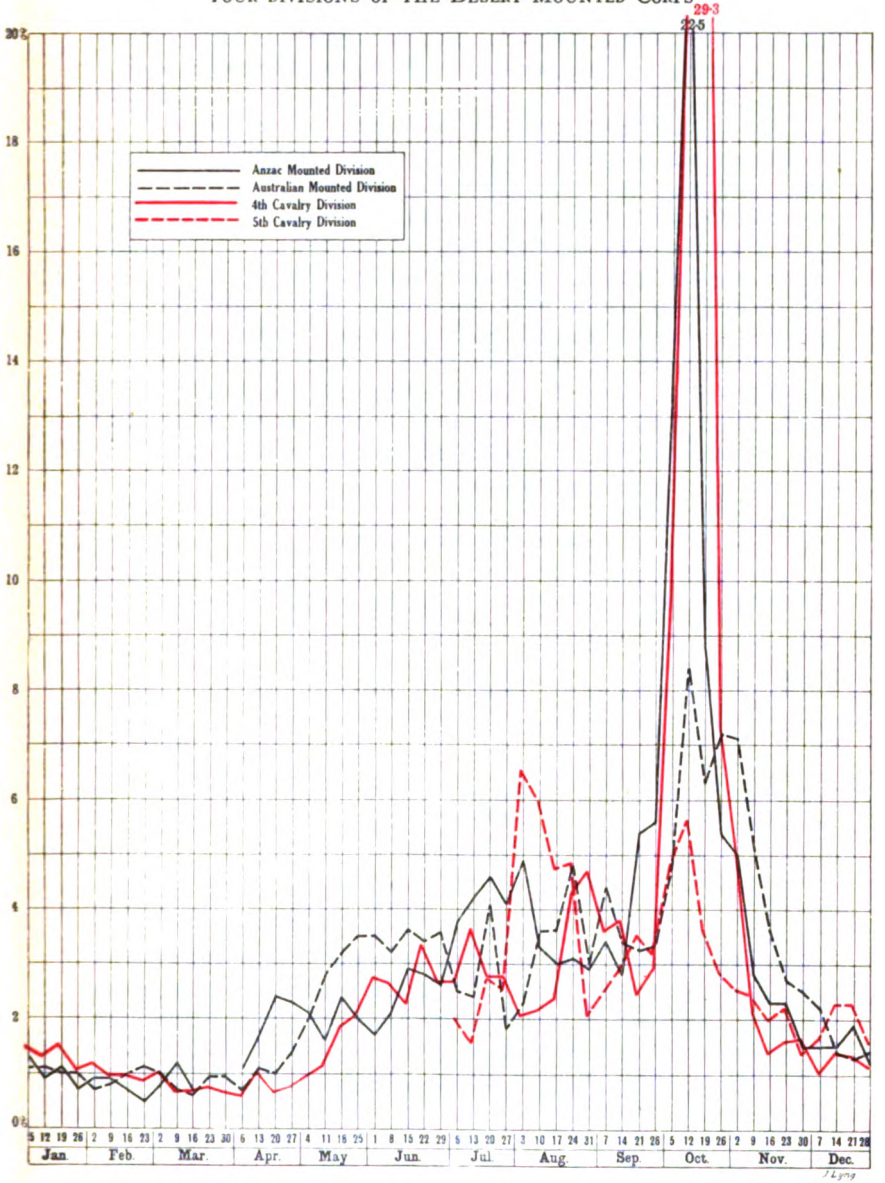
Graph No. 16

WEEKLY RATES PER CENT OF STRENGTH, OF SICK EVACUATED FROM THE FOUR DIVISIONS OF THE DESERT MOUNTED CORPS


29·3
22·5
Anzac Mounted Division
Australian Mounted Division
4th Cavalry Division
5th Cavalry Division
20
18
16
14
12
10
8
6
4
2
0
5 12 19 26 2 9 16 23 2 9 16 23 30 6 13 20 27 4 11 18 25 1 8 15 22 29 5 13 20 27 3 10 17 24 31 7 14 21 28 5 12 19 26 2 9 16 23 30 7 14 21 28
Jan. Feb. Mar. Apr. May Jun. Jul. Aug. Sep. Oct. Nov. Dec.

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the alleviation of physical suffering that is made possible by training and experience to men who will not fall short of the utmost effort, impossible in the absence of such training and experience.

A study of the outbreak of disease

It remains to examine in detail the nature of the epidemic outburst of disease which, during the month of October, brought both the northern and southern forces of the Desert Mounted Corps for a time to something approaching a state of *hors de combat* and approximately 48 per cent of their number under the care of the medical service during the nine weeks covered by the final offensive. During this period the total sick evacuated from Chaytor's Force[13] was 8,352, from the northern force 11,300.[14] The monthly wastage of the two forces is here shown in direct continuation of that sustained during the period when both occupied the Jordan Valley.[15] It is unfortunately impossible, for reasons

Average weekly sick rate per cent.

—	ANZAC MOUNTED DIVISION.		AUSTRALIAN MOUNTED DIVISION.	
	Adm. to F. Ambs.	Evac. from F. Ambs.	Adm. to F. Ambs.	Evac. from F. Ambs.
1918.				
15–30th Sept. ..	5.49	4.97	3.27	3.04
October ..	7.79	6.30	6.16	4.86
November ..	2.79	2.47	4.20	3.35
December ..	1.68	1.52	1.53	1.20
1919.				
January ..	1.73	1.32	1.45	.96
February ..	1.38	1.01	1.44	.92

already noted, to analyse the sick wastage into its component diseases and disease groups. In both forces, however, only two disease entities assumed epidemic proportions, namely, malaria and influenza—the former in a natural sequence to similar infection sustained in the Jordan Valley before the advance, the latter incurred in the onflowing wave of the amazing pandemic pestilence which overran the world in the

[13] Strength 13,000. [14] Strength 27,500. [15] *See p. 712.*

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last months of the war. The question of the actual rôle and relative importance of the organisms responsible for these two outbreaks—each being an epidemic giant in the microscopic or ultra-microscopic underworld of the forms of life inimical to mankind—cannot be exactly appraised. The possible approximation is, however, of sufficient interest to make worth while the consideration in some detail of the factors involved. The course of the epidemic outbreaks may first be followed as they appeared in the Desert Mounted Corps and in Chaytor's Force. In the former an increased number of cases was evacuated for malaria to field ambulances during the period of the advance to Damascus. This, however, was to have been expected under such conditions, for over-exertion and exposure, it is well known, cause quiescent cases to light up. It is certain also that during the advance not a few cases were undiagnosed; for though two malarial diagnosis stations accompanied the corps, their opportunities were restricted. Another factor also enters here to complicate the diagnostic problem. The type of malaria encountered in the early part of the year was chiefly that caused by *Plasmodium vivax*, tertian, or "benign" tertian. By the beginning of August infection with *Plasmodium falciparum*, causing the subtertian or "malignant" form, became predominant and, in conformity with previous experience in Palestine and elsewhere, in October and November ruled the situation.[16] In their advance through the plain of Esdraelon and elsewhere the mounted troops had ample opportunity of becoming infected with the latter type of parasite. The clinical picture presented by malignant malaria is not at all constant. It may accurately mimic dysentery, cholera, encephalitis, enteric, influenza, sand-fly fever, and a host of

[16] During the first five weeks of May-June benign tertian was a little in excess, and thenceforward till the end of July considerably so. From this date the number of benign cases actually fell, with a temporary rise in the early part of October, but only to the July level. At the same time the malignant type rose continuously but irregularly till at the beginning of August it exceeded the benign. At the end of the month it participated in a slight general fall. The small rise in September and the enormous one in October were almost entirely due to infection with *Plasmodium falciparum*, the increase in *Plasmodium vivax* infection being insignificant. In the same way the sudden fall in the total number of cases was brought about by decrease in the malignant type. Till the end of November the majority of cases were of this type; from then onwards the benign again predominated.

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other diseases.[17] Its symptoms and the ultimate cause of death may, in fact, originate in almost any system or organ of the body.

Malaria and influenza

It will be recalled that during the first week in Damascus a very heavy outbreak of serious febrile disease occurred. The exact nature of this was not at the time clear, and has indeed in some measure remained a matter of debate. Damascus was then in the grip of pneumonic influenza, and was suspected —in some cases not without cause—of dysentery, typhus, cholera, phlebotomus and other fevers. In the circumstances that existed, it may well be believed that close clinical observation was not easy. Most of the pyrexia was called influenza, dysentery, or even cholera. An outbreak of cerebro-spinal fever was suspected. The arrival of the Malaria Diagnosis Station on October 12th in some measure cleared up the situation. All the supposed cholera and cerebral cases, and a large proportion of those of dysentery, were found malarial. Of the cases diagnosed as influenza and whose blood was examined, a large proportion were found to harbour the malarial parasite and were presumed to be cases of this same disease. It is therefore clear that, simultaneously with an outbreak of pneumonic influenza, a huge rise took place at this moment in the incidence of malignant malaria both in the Desert Mounted Corps and also in Chaytor's Force. To the latter attention may now be directed.[18]

Outbreak in Chaytor's force

The outbreak of disease in this force ran a course so extraordinarily parallel with that of the epidemic in the northern force as to suggest irresistibly some common factor. Beginning about September 30th, the epidemic reached its height about October 9th and then as rapidly subsided. On October 4th sixty-two cases of high fever occurred in the 3rd Light Horse

[17] The official memorandum on "Medical diseases in tropical and sub-tropical war areas" published by the War Office in 1919 gave a list of some 30 diseases which must be borne in mind and may simulate or be simulated by malaria. Furthermore, malaria may run concurrently with other infections.

[18] Among deaths from diseases in the A.I.F. during the last quarter of 1918 70 are recorded as from pneumonia, 96 from malaria. Post mortem examinations of a number of those who died with malaria showed that in 63 per cent broncho-pneumonia had been the immediate cause of death. It is not without interest in this connection to note that blood examination of a number of Turkish prisoners without obvious signs of the disease showed the malarial parasite in from 30 to 40 per cent, while 60 per cent of Germans and Austrians suffered from the infection.

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Regiment, eighteen miles south of Amman, and in ten days 1,269 British and Indian sick were evacuated from Amman. A portion of the Anzac Field Laboratory, brought up from Jericho, found here also that practically all the cases of fever were due to malaria, 90 per cent. being of the malignant variety. Influenza was inconspicuous, or at least was not recognised.

We are now in a position to consider the origin of the outbreak, and in particular the much debated question whether the anti-mosquito measures in the Jordan Valley were of importance in making that area less malarious. The crucial facts appear to be:—first, that, on leaving the British lines, the troops of both forces, the one at Jisr ed Damieh and the other on the plain of Megiddo and Upper Jordan, entered on country similar to that occupied during the summer, but where, being in Turkish occupation, no anti-malarial work had been done; second, that in both forces the outbreak in the various formations occurred on dates which, after such exposure, corresponded closely with the period of incubation of the parasite (ten to fourteen days),[19] and that during the intervening period the rise was comparatively small. These facts point strongly to the conclusion that the epidemic was chiefly due to infection outside the protected area, and therefore in areas which were intensely infective at a time when the protected area was not so, or in a far smaller degree. Individual experiences add weight to this conclusion. The 4th Cavalry Division, which spent several nights in the specially infective area, suffered far more seriously than the other two divisions of the Desert Mounted Corps, which merely passed through it. A more telling comparison arises from the experiences of the Anzac Mounted Division. Its 1st Light Horse and New Zealand Mounted Brigades spent a night in the unprotected

Value of the anti-malarial measures upheld

[19] The non-sexual cycle in the blood goes on by geometrical progression from the first introduction by the mosquito of the sporozoite, but it is usually about two weeks before a sufficient number of merocytes rupture simultaneously to produce sufficient toxin to cause symptoms (period of incubation). It is considered that, to be capable of producing symptoms, there must be several hundred parasites per cubic millimetre sporulating at once. The incubation period of influenza, it may be observed, is 3 to 5 days. In the Desert Mounted Corps in Damascus the maturation of the two incubation periods (influenza and malaria) would thus be closely coincident about Oct. 5 or 6.

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Jisr ed Damieh area, the 2nd Battalion, British West Indians, a week, while the 2nd Light Horse Brigade passed straight from the protected area into the hills of Moab. The 1st Light Horse and New Zealand Mounted Brigades lost through evacuation from malaria respectively 315 and 360 men before they reached Jerusalem on October 4th; the British West Indians were practically annihilated as a force, losing 726 in four weeks; on the other hand the 2nd Light Horse Brigade, of a strength equal to that of the other brigades, had only 110 cases.[20]

General incidence of malaria in the British Force

The total number of cases of malaria diagnosed by blood examination in the Desert Mounted Corps during the seven weeks of the offensive was 6,347, or 22 per cent of the average strength; for the whole malarial season May 4th to December 28th it was 13,239 cases, or 43 per cent. For the reasons given, these figures were probably below the true number. For the whole E.E.F. (320,000) the total cases in 1918 numbered 35,222, or 11 per cent: in the A.I.F. 4,406 cases, or 25 per cent. The higher rate in the A.I.F. is explained by the greater exposure of the Australian Light Horse to infection from the circumstances of their service. In the whole E.E.F. the deaths from malaria were 865 (one in 370 of the force, with a case mortality of 2.5 per cent); in the A.I.F. 101 (one in 174, case mortality 2.3 per cent).

Treatment

It was soon found that the prognosis was closely related to the celerity with which treatment was instituted and the vigour and persistence with which it was carried out: the first factor again depended on early diagnosis, and, for this, blood examination was essential. Diagnosis by clinical signs was in many cases difficult or impossible. To make early blood examination possible, two malarial diagnosis stations were allotted to each corps and were employed as near to the forward troops as possible. In the Anzac Mounted Division, during its stay in the Jordan

[20] Parasites were actually detected in the blood of these brigades (in order as above) in 239, 318, and 57 cases respectively. In connection with this division it was found that, of 968 cases with fever of unrecognised cause and whose blood on one examination was negative, on further examination at the base 60 per cent were found to be positive. In the field one slide only was examined for each case.

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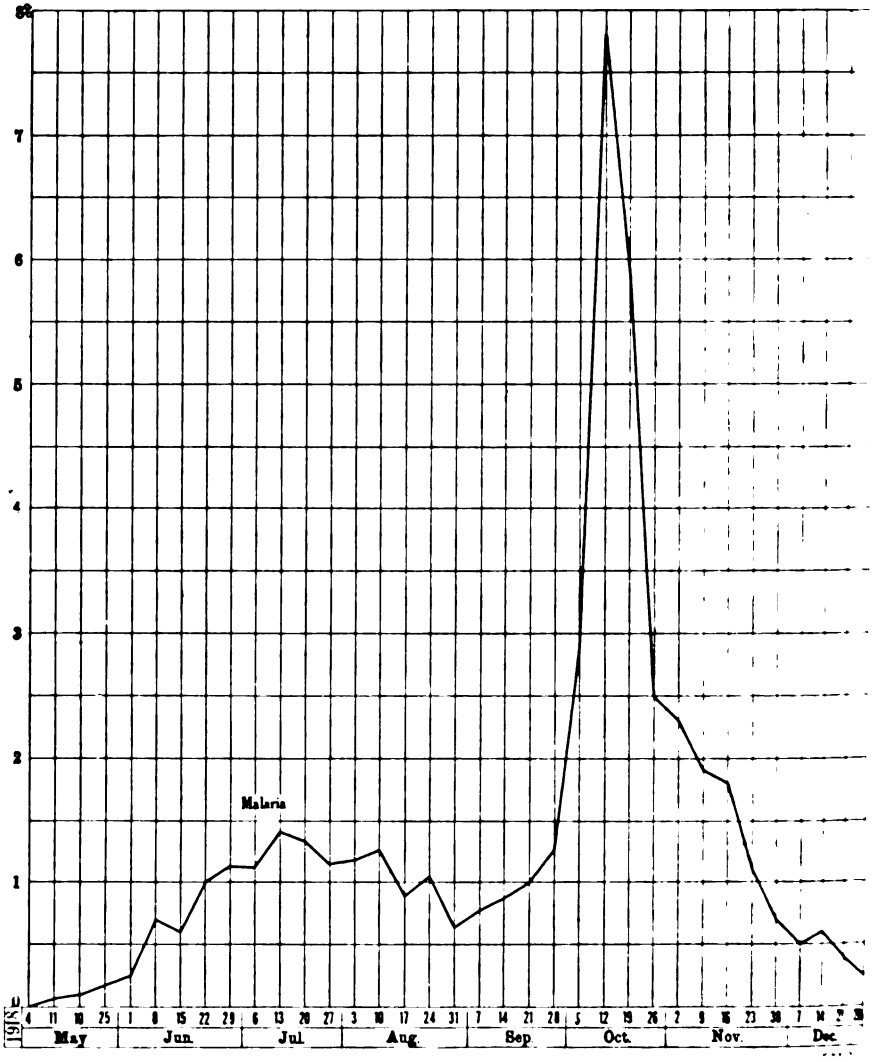
Graph No. 17

WEEKLY RATE PER CENT OF STRENGTH, OF MEN EVACUATED FROM THE DESERT MOUNTED CORPS WITH MALARIA: MAY TO DECEMBER 1918



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Valley as part of Chaytor's Force, the Anzac Field Laboratory took the place of the malarial diagnosis stations. Though not provided with transport of its own, the excellence of its equipment made this unit very valuable. Two military stationary laboratories worked with the army in the field at the advanced base: the total number of blood examinations carried out by all these units during 1918 was 111,261, with positive findings in 24,748.[21]

[21] **The Anzac Field Laboratory.** Among the new medical units which were evolved to meet the unforeseen requirements of the war, none in the history of the Australian Medical Service is more worthy of note than this, whether for the efficiency of its small personnel or the value of its work. From its formation in August, 1916, this unit became the scientific centre and a source of inspiration for the medical services of the Desert Mounted Corps: its output in technical diagnostic investigation was, in proportion to its staff, a very large one. Its original staff was one officer, one staff sergeant, and two other ranks (later increased to seven), and comprised during its 2½ years a total of 4 officers and 11 others, of whom 3 were N.Z.M.C., 2 R.A.M.C., the remainder A.A.M.C.; one was a Bachelor of Science, one a clergyman. Two of these died of malaria, and 3 others were invalided from the same disease.

After the suppression of the cholera outbreak in 1916 (for which purpose it was formed) its most important work was the diagnosis of malaria in the Jordan Valley. Housed in tents and a wooden hut, it remained here throughout the summer, working at high pressure, and continued the same work in the hills of Moab. Proceeding thence to Aleppo, and there attached to the 5th Cav. Div., it carried out bacteriological and other investigations not only for the British force in this region but for large civil populations.

In the 2½ years of its existence, 32,390 examinations were carried out. Of these 17,431 were of blood films for malaria, 4,312 being positive (3,011 from the Jordan Valley). 6,889 throat swabs were examined for diphtheria (the great majority in 1916), the detection of carriers for this disease being of definite value, while exact diagnosis permitted effective administrative measures. 5,454 examinations by culture for dysentery were made, the majority of positive findings being bacilli of the Shiga type. 528 examinations of water were carried out, and 407 veterinary. Other diseases investigated were relapsing and typhus fever, Aleppo Button (in which a promising research was cut short by transfer to Egypt), and other forms of oriental sore; also surra disease among the camels. In addition an important part was played in the anti-malarial work in the Jordan Valley and elsewhere in mosquito identification, surveys, and meteorological observations.

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CHAPTER XIII

THE BASE FROM 1917 ONWARDS

THE treatment of Australian sick and wounded in Egypt during 1917 and 1918 was carried out mainly in one British and two Australian hospitals, and largely centred in Port Said. In this way a policy of separation, quite impossible on the Western Front, was here carried out with success. The records of these hospitals embody valuable evidence of the medical experiences of the light horse. In the administrative sphere, a crisis in the relations between the Australian medical service in Egypt and the headquarters of the A.I.F. in London led to a decision which—by the desire of the G.O.C., A.I.F. in Egypt—involved no break of the policy that the Australians in Palestine, like those in France, should be administered by the G.O.C., A.I.F.

* * *

The Egyptian Expeditionary Force, which in October, 1916, had numbered 164,000, on October, 1917, had reached 257,000, and by October 1st, 1918 (the day of entry into Damascus), 312,000. During the same period the Australian Force had risen from 15,500 to 18,900.

The two spectacular sweeps through Palestine and Syria, and the growth in the medical service of the E.E.F. associated with it, were accompanied by commensurate developments and a considerable amount of reorganisation at the Base and on the Lines of Communication. In preparation for the opening offensive additional British general and stationary hospitals were brought in or organised locally, and, as the lines of communication lengthened and the strategic railway moved forward in pace with the advance, forward hospital centres were established and the number of ambulance trains increased. Eventually evacuation by sea formed the chief link between the forward area and Egypt.

In Allenby's 1917 offensive

For General Allenby's first offensive in October and November, 1917, the British general and stationary hospitals all remained in Egypt; well-found casualty clearing stations were established at Deir el Belah, but no advanced medical base east

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of Kantara. For this first offensive, evacuation of battle casualties to Egypt from the E.E.F. amounted to 14,393, those from the A.I.F. numbering 739. The latter went chiefly to No. 14 Australian General Hospital at the Abbassia Barracks, Cairo, which by this time was established and equipped for a normal of 1,040 beds. No. 2 Australian Stationary Hospital, though organised, equipped, and staffed for any type of medical or surgical work, was retained by the D.M.S., E.E.F., as Camp Clearing Hospital at Moascar, and in November, 1917, the venereal section of No. 14 General Hospital was transferred to it. To the general hospital 754 surgical cases were admitted during November—the heaviest admission of battle casualties during the campaign. These had been evacuated by ambulance trains from the British casualty clearing stations at Deir el Belah and Imara. During the same period it received 720 medical cases, and the proportion of these rapidly increased during the succeeding months.

Reorganisation of 1918

The reorganisation which followed this offensive (January to August, 1918), wherein the British troops were largely replaced by Indians, brought about extensive readjustments of hospital accommodation in the E.E.F., since it was an accepted policy that Indian troops should be concentrated in their own special hospitals. Under most circumstances the policy of making separate provision for Australian casualties, favoured by the Australian administrative authorities in Egypt, would, through the smallness of their number, have been difficult to carry out with due regard to efficiency and economy in the general scheme of evacuation. Geographical and other circumstances, however, combined to furnish a natural, and for a time entirely adequate, means for provision on these lines. In Port Said, only twenty-five miles by rail or canal from Kantara, first-class accommodation was available for one general hospital, though not sufficient to form a large hospital centre. In December, 1917, as part of the rearrangement to meet the new situation created by the advance of the front to the Jerusalem–Jaffa line, an exchange of sites was effected between No. 14 Australian and No. 31 British General Hospitals, the former, in exchange for the fine Abbassia

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A treatment centre for Australians

Barracks, taking over the not less satisfactory buildings (the Suez Canal Company's workshops) at Port Said, where the British unit had been situated throughout the Sinai Campaign. Not only did the Australian force thus acquire a site which saved additional train journey and obtain a far better summer climate, but it had the advantage that Moascar (the Australian and New Zealand Training Centre and Details Camp) directly connected with Port Said by rail and water was only forty-five miles distant. Moreover, Suez, the port of embarkation for invalids and of arrival for reinforcements, was similarly connected with Port Said, while directly across the Canal from the hospital site was the Desert Mounted Corps rest camp. Here during 1918 the unit established itself and built up a very fine hospital, organised, equipped, and staffed to carry out every variety of medical, surgical, and pathological work on the best lines —not excluding original research. Indeed, during 1918 Port Said became both hospital and convalescent centre for the Australian troops, and for a time the accommodation at No. 14 sufficed for all casualties arriving from the front. By the end of May, however, the heavy evacuation from the Jordan Valley caused a congestion. By special arrangement approved by the D.M.S., E.E.F., the overflow went to No. 31 British General at Abbassia.

Convalescents

When the scheme for an Australian Convalescent Home at Helouan was dropped,[1] some difficulty had been experienced in finding in the canal zone a suitable substitute for Montazah. As a temporary measure a section of the Desert Mounted Corps rest camp at Port Said was fitted up and staffed for convalescent cases. In March, 1918, a large building which formed part of the premises occupied by No. 14 Australian General was equipped as a convalescent ward for 500. Though this was not a very cheerful-looking building, all that could be done to make it bright and comfortable was carried out by the Australian Red Cross Society. No. 14 General Hospital now served four distinct purposes—as a local hospital for British troops stationed at Port Said, as the base hospital for Australian

[1] *See p.* 655.

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troops evacuated from Palestine, as a convalescent home for them, and as an invaliding base and point of concentration for Australian invalids boarded for return to Australia. These last were either retained in hospital till a ship became available, or, if fit for camp life, were transferred to await embarkation at the rest camp across the canal. Primarily organised for maintaining the health of the Desert Mounted Corps, this had now come to act also as a hardening dépôt for Australians discharged convalescent from hospital, all of whom since October, 1917, spent fourteen days in this camp before return to full duty in the Training Dépôt at Moascar. In December, 1917, its establishment of 4 officers and 33 other ranks, with 30 light-duty men attached, included one officer and 9 other ranks A.A.M.C. It had accommodation for 1,050.

In the A. & N.Z. Training Centre and Details Camp (Base Dépôt) itself at Moascar developments during the last year of the war were chiefly those required to meet the shortage in man-power brought about by the falling-off in new troops, and the wear and tear of the original force. In particular the problem of the disposal of men of the various categories within the "B" class, and the augmentation by all possible means of the effective "A" class, brought about increasing participation of the medical boards in the work of this centre.

Boarding

The various procedures involved in the disposal of recovered casualties in the A.I.F. by return to duty (as fit or partly fit) or by invaliding were greatly facilitated by the establishment of the Australian medical centre at Port Said. The boarding officers were enabled to keep more easily in touch with boarded men classified as other than "A," since, apart from the overflow to Abbassia, all were held in No. 14 General Hospital, in the Desert Mounted Corps rest camp, or at Moascar. After the formation of the standing Medical Board[2] the boarding system underwent little change in method till the close of the war.

Standards modified

The factors, however, which set the standard for determining classification into fit, temporarily unfit, or permanently unfit—in particular the decision whether the convalescents presented

[2] *See p. 656.*

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for boarding were still efficient as fighting-men—varied with the demand and supply of man-power. This, indeed, was largely an economic problem and one closely related to the national factors which at the end of the war dominated the situation. Broadly speaking, the standard of fitness was progressively lowered, partly to facilitate systematic preparation for the front, partly to permit of a more extended use of men other than those of the "A" class, of whom, with the wear and tear of war, the number continually increased. The sub-divisions of category "B" became more elaborate. The second purpose of invalid "boarding"—that of providing data to assist in the determination of pension awards—also came into greater prominence as this problem loomed increasingly larger in Australia.

Defective arrangements for sea-transport

While the selection of invalids and the arrangements for their embarkation were entirely satisfactory, the means for their transportation to Australia was perhaps the most unsatisfactory feature of the medical arrangements of the A.I.F. in Egypt. It was galling to the Australian medical embarkation office—and was the subject of remark by British and Indian officers—when a well-fitted hospital ship for the conveyance of sick Indian troops to India lay alongside an ordinary, and perhaps not very suitable, transport which was to carry Australian sick and wounded soldiers a far greater distance. When in 1917 the Australian hospital ships were sent by the Cape route and the accommodation occasionally available on them for invalids from Egypt was lost, invalid transport from Egypt depended solely on ships going to Australia for reinforcements or cargo.[3] But in 1918 the risk to which invalids from England were subjected through submarines at the mouth of the Channel became such that shipments were sent overland to Marseilles, thence by British hospital ships to Alexandria, and were picked up at Suez by the Australian hospital ships which now plied between Suez and Australia for the purpose, and these became

[3] Requests were made by the medical authorities in Egypt that a suitable transport should be fitted up and be retained to carry 350 cases between Egypt and Australia—this being the number that might be expected to accumulate in the time occupied by the journey to Australia and back—cargo and perhaps some reinforcements being carried on the return journey to Egypt. The proposal did not, however, find favour at A.I.F. Headquarters in London, the D.G.M.S. in Australia having replied to an earlier request, that it would result in a shortage of medical officers as reinforcements.

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available for the more serious cases from the light horse. The numbers of invalids returning to Australia from Egypt are shown in the following table:—

	—				1918- Invalids from U.K. returned *viâ* Egypt.	
	1916.	1917.	1918.	1919.	Arrived.	Departed.
January ..	..	270	..	1,082		
February ..	..	..	279	147		
March ..	..	180	..	820	512	
April ..	..	..	30	592	641	863
May ..	..	168	..	15		
June ..						
July ..	..	181	338	..	502	719
August ..	..	78	338	..	477	549
September	443					
November	267	458	99			
December	..	131	473			
Total ..	710	1,466	1,557	2,656	2,132	2,131

Not only patients on hospital ships but reinforcements from Australia were affected by the reversion to the Suez route at the end of 1917. In consequence of the critical shortage of shipping they were now sent overland to Alexandria and from Taranto to Havre. For Australian and New Zealand reinforcements awaiting re-embarkation for Taranto, a transit camp was opened at Suez with a camp hospital for 400 cases—250 general, 100 infectious, and 50 venereal. The medical establishment included a "Senior Medical Officer" with a small permanent staff, which was supplemented by the A.A.M.C. reinforcements in transit. During the six months that the camp was open (December, 1917, to June, 1918) 9,019 troops passed through, of whom 473 were admitted to hospital, including 119 cases of measles, 55 of mumps, and 53 suffering from venereal disease. The last-named were sent direct from the transports to No. 2 Australian Stationary Hospital. Among these troops almost every

Transit camp at Suez

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transport carried some men who, in the opinion of the S.M.O. Transport, were permanently unfit for active service. In each case these were boarded in Egypt, but only a few were sent back direct to Australia. As was stated in a report by the S.M.O. of the Camp,

Unfit reinforcements

> the question was a difficult one, because all troops had presumably been carefully examined before leaving Australia, and to disagree with the verdict of the examining officers prior to embarkation, except in very obvious cases, might reasonably be expected to give rise to friction and argument. On this account several cases were sent forward to the United Kingdom who would certainly never be fit for service in the field but might prove fit for "B" class work.

It may be noted here that, of reinforcements for the Australian mounted formations, some 228 men were returned to Australia during the period of the Palestine Campaign as physically unfit for service, without having joined a unit in the field,[4] their classification by board being for "discharge" 182, for "change" 39. 5 were recommended for "operation," and 2 for "home service in Australia."

The Australian Dental Service, equally with the medical, participated in the development and reorganisation which characterised the period here dealt with. In January, 1918, a Staff Officer for Australian Dental Services was appointed for the A.I.F. in Egypt,[5] replacing a "Senior Dental Officer A.I.F. in Egypt," who had been appointed locally to advise the A.D.M.S., A.I.F., on dental matters and to keep touch with the Consulting Dental Surgeon, E.E.F., in regard to supply and matters of detail. Hitherto the great bulk of dental work had fallen on the dental units in the field and was carried out under difficult conditions, while at the base, in much more favourable circumstances, little had been done. Under a new system inaugurated by the Staff Officer for Dental Services the principle was introduced that as far as possible all reinforcements from Australia, men on leave, and all convalescents before return to the front, should be freed at the base from dental defects, leaving to the dental units in the field only repair and relief work, for which they were

Dental service—developments

[4] Some of these were returned to Australia for sickness contracted in Egypt. *See Vol. II.*

[5] Major G. Douglass, A.A.M.C.

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equipped. Though this ideal of dental inspection and treatment of each man had not been attained by the time of the Armistice, a great improvement had been effected in the dental condition of the force; in addition the strain on the field units was much lessened. The work in these was very heavy, and the conditions under which it was carried out were often extremely trying. In a bell (or even E.P.) tent the heat was well above meteorological shade temperature, the light bad, the flies often swarming. It was when active military operations were on hand that the dental personnel had their recreation—most often in arduous, but less tedious, work with the wounded or sick.

In the otherwise well-organised Dental Service with the light horse one defect, and that a very vital one, persisted in spite of unremitting efforts on the part of the D.D.M.S. to rectify it. This was the absence of any special transport for the dental section, whereby the dental units were to a considerable extent immobilised. In the later stages of the campaign, room was usually found in the ambulance transport for light kit sufficient for emergency work.

The policy outlined above involved a considerable increase in personnel, some of which was obtained from the ranks of the A.I.F. itself, some sent from Australia. By the middle of 1918 the dental units numbered nineteen, disposed as follows:—

Training Camp, Moascar	6 units	No. 2 A.S.H., Moascar	1 unit
Field ambulances ..	5 „	Rest Camp, Port Said ..	1 „
No. 14 A.G.H., Port Said	3 „	A.I.F., H.Q., Cairo ..	2 „
		Emergency	1 „

In the camp at Moascar the units formed a dental hospital, for which a cement building was erected. Some difficulty was experienced in the supply of dental stores and equipment, but the efficiency of the centre was promoted by gifts of towels and other accessories from the dental profession in Australia.

In respect of treatment the dental policy in the A.I.F. in Egypt was to supply only enough to keep the teeth serviceable. To provide facilities for more elaborate methods of treatment, when required, and to assist men who through service had suffered injury to such work done prior to enlistment,

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two units were established at A.I.F. Headquarters, Cairo, where gold, bridge, and crown work was carried out, the expense of material being borne by the individual. One important branch of dental surgery was lacking—the prosthetic treatment of wounds to the jaws. No medical or dental officer in the A.I.F. in Egypt had special training on the lines so effectively exploited in England[6] and elsewhere.

The British dental service in the E.E.F. was organised on a much less lavish scale than those of Australia and New Zealand. In the field their establishment consisted of one unit to each division, instead of one per brigade. A considerable amount of work was in consequence carried out for British troops by the Australian dental units of the Desert Mounted Corps.

Nursing service

The administrative situation in connection with the Australian Army Nursing Service in the East, many members of which were now serving in India and Macedonia, attained considerable prominence during this period. The supply of reinforcements for those in Macedonia (Salonica) and their administration as they passed through Egypt devolved on the A.I.F. Headquarters in Cairo, the D.M.S., A.I.F., being kept informed as to their numbers and rank. In a later chapter[7] attention will be given to the work of these Australian women and to the special problems with which the Australian Army Nursing Service was faced in the Levant, Egypt, India, and elsewhere—and there were few places on the world-wide battlefront in which they were not found. A brief statement may, however, be given here of their work in Egypt. From the point of view of the Australian Army Nursing Service, the outstanding feature of hospital work at this seat of war was the concentration of Australian sick and wounded in special hospitals and the similar concentration therein of Australian nurses. At first the number sent to this seat of war was in excess of that required in the Australian hospital, and a large number were distributed among the British hospitals in Egypt and were there associated more directly with the British (Q.A.I.M.N.S.) Nursing Service in the care of the

Association with Australian troops

[6] *See Vol. II.* [7] *Vol. II.*

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Empire's wounded and sick.[8] Eventually all those not attached to No. 14 Australian General Hospital were concentrated in No. 31 British General Hospital at Abbassia. In all 248 Australian nurses saw service in Egypt during the Sinai and Palestine Campaign.

Pharmacists

The Australian Pharmaceutical Service in Egypt, as elsewhere in the A.I.F., played an important, if unspectacular, part in maintaining the efficiency of the medical units. Their personnel comprised two commissioned and eight non-commissioned officers, all of whom were fully qualified and experienced pharmaceutical chemists.

Red Cross Society

The Australian Branch of the British Red Cross Society maintained in Egypt an organisation which was entirely separate from the medical service. It worked in close co-operation with the parent society, but its activities were carried out in sufficiently close collaboration with the directing head of the Australian Army Medical Service in Egypt. They were exercised wherever opportunity permitted, from the front to the base. With headquarters at Cairo, a strong section was maintained at Port Said, and also at Moascar; at the front, stores were established at Jerusalem and Jericho. The work of this body was connected chiefly with convalescent homes and dépôts. Various special aspects of its activities appear in the course of this narrative;[9] here it is necessary only to say that in ameliorating the lot of the sick or wounded Australian soldier its voluntary efforts formed a valuable—in some respects even necessary—adjunct to the work of the medical service.

As elsewhere, the Australian Y.M.C.A. hut was a feature in the social life of the general hospital.

Internal administration—control from London

The various rearrangements at the base described above, and the considerable reorganisation that took place during this period between the two great Palestine offensives (December, 1917, and September, 1918) in the Australian light horse formations, brought into relief difficulties in the

[8] On 3 Dec., 1917, 45 Australian nurses arrived for service in Imperial hospitals and were distributed throughout Egypt.

[9] For a detailed account of the work of this voluntary organisation, *see* "*Through War to Peace*" by E. G. Hicks.

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administrative situation in respect of the various parts of the A.I.F. overseas. These were felt, it must be acknowledged, chiefly in connection with the medical service, which alone was treated, in respect of commissioned promotion and posting, as a single corps.[10] As delays in intercommunication with A.I.F. Headquarters in London became greater, and at the same time the needs for rapid decisions more pressing, communication direct with Australia had become increasingly frequent. At the same time, in the absence of personal liaison between Egypt and England, the overworked cables and precarious mail service alone maintained relations between the two parts of the A.I.F. The matter reached a climax in connection with a debate on the administration of the large body of Australian nurses now established in Macedonia (Salonica) and in India. In February, 1918, the Minister for Defence enquired through A.I.F. Headquarters in Egypt whether it was considered that a change was desirable in the system of medical administration:

Change of system suggested

> Consequent (it was noted) upon the varying requirements from time to time, the original constitution of the Australian Imperial Force has undergone some modification, and the force has to some extent ceased to be a single entity, Australian personnel having been despatched to several different areas.

Salonica and India in particular were noted as having been a cause of difficulty. Administrative control by the D.M.S., A.I.F. in London, of the Australian medical and nursing personnel serving in Egypt "had in some ways proved very unsatisfactory," chiefly in respect of delay in communicating with Egypt.

In a considered reply the G.O.C., A.I.F. in Egypt, expressed agreement with the view that, in respect of the medical service, the system of control from London had been unsatisfactory, and he stated further that the delays involved in communicating *viâ* London with Australia were so great that, for any important matter, this channel had been found

[10] The essential difference between the medical and other technical branches of the army in this respect lies in the fact that in the former technical qualification for the great majority of positions that carry commissioned rank can be acquired only by a prolonged course of professional study, which in peace is controlled, and the efficiency of its practitioners ensured, by the State.

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almost useless, and that, in consequence the custom had grown up of cabling direct to Australia for personnel required in Egypt.

In a report on the matter to the G.O.C., A.I.F. in Egypt, the D.D.M.S., A.I.F. in Egypt,[11] strongly recommended the establishment of direct relations between the office in Egypt and the Director-General in Australia, in place of those existing with the D.M.S., A.I.F. in London. This view was not supported by General Chauvel, who was against "any difference in the administration of the A.A.M.C. from that obtaining in other arms, and had no desire for the removal of his command from the direction of the G.O.C., A.I.F." To overcome the main cause of disability he recommended that direct correspondence with the Defence Department on urgent matters should be authorised, and that a representative of the D.M.S., A.I.F., "should visit Egypt and Palestine periodically, so that the D.M.S., A.I.F., might become *au fait* with local conditions"; transfers and exchange of officers and nurses should be carried out between France and Egypt and thus remove anomalies. The report was referred to the G.O.C., A.I.F., and by him to Surgeon-General Howse, who expressed concurrence with the G.O.C., A.I.F. in Egypt, "in deprecating any treatment of A.A.M.C. and A.A.N.S. which involves a departure from general principles adopted for the A.I.F.," and in his recommendations. There the matter rested.

View of G.O.C., A.I.F. in Egypt

Of the Australian medical organisation of the base in Egypt during 1918, it may in general be said that to an increasing extent it was well adapted to serve the requirements of the relatively small but specialised body of troops maintained by Australia at this seat of war, and was working in good accord and with satisfactory mutual adjustments with British command and administration.

The preparations made at the Base and on the Lines of Communication by the D.M.S., E.E.F., for the final offensive

[11] In April, 1918, the appointment of A.D.M.S., A.I.F. in Egypt, was raised to that of D.D.M.S., at the same time that the D.A.D.M.S. was made an A.D.M.S. These positions were filled till the end of the war by Col. R. M. Downes, A.A.M.C., and Lieut.-Col. A. L. Dawson, A.A.M.C., respectively.

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were on a scale comparable with the provision available in the East when, at the close of the Gallipoli campaign, the Turk was left master of the situation. In Egypt the actual hospital beds now numbered 22,524. An important advanced hospital centre had been formed on the borders of Palestine in the Deir el Belah-Gaza region, with associated reinforcements camp and dépôt, and in general and stationary hospitals there existed east of the Canal between Kantara and Ludd accommodation for some 15,000 casualties — British and Indian. The total bed state in Egypt and Palestine (including convalescent dépôts and clearing hospitals) was 54,800.

Accommodation prior to final offensive

In the Australian general hospital malaria from the Jordan Valley had already far outstripped the accommodation, both general and convalescent. By the end of June No. 31 British General Hospital at Abbassia was so much taken up by Australian casualties that the D.M.S., E.E.F., and the British Matron-in-Chief[12] agreed that all Australian nurses serving in British hospitals in Egypt should be concentrated there. In pursuance of this policy, by the end of July some sixty-eight Australian nurses were assembled at this hospital from fifteen British hospitals. The Australian stationary hospital, still at Moascar, was occupied with venereal disease, camp cases, and slight overflows from No. 14 Australian General Hospital. As regards convalescents the situation was still unsatisfactory. The convalescent accommodation in No. 14 was overtaxed, and it had not been possible yet to provide an Australian substitute. Although the Defence Department reiterated requests to the A.I.F. Headquarters in Egypt that a special Australian convalescent home should be provided, when asked for £6,000 for huts it deferred the matter for report by the Director-General, Surgeon-General Fetherston. This officer arrived in Egypt in August, 1918, on the eve of the operations and authorised the expenditure of £10,000 on huts. Action, however, was forestalled by the Armistice. An arrangement made by General Fetherston with the British authorities for the expansion of No. 2 Stationary Hospital to 1,000 beds and its removal to the Gaza-Jaffa area also came too late.

[12] Dame S. E. Oram, Q.A.I.M.N.S.

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Final offensive—the sick wave

The preparations made for vast woundings in the final—and this time victorious—scene of the campaign against the Turk were, like those for the evacuation of Gallipoli, not required for such cases, but, as then, for a sudden onset of sickness which far surpassed all calculations. It was a "blizzard" of malaria and a gust of the world-wind of influenza that caused the sick wave and led to a mortality among friends and foes greater than from the severest battles of the campaign. The Armistice brought no relief for the medical service. On the contrary, all hospitals were extended to the utmost to cope with the sick wastage. Australian evacuations reached a climax at this time. No. 31 was practically given over to Australian troops; its nursing staff was now almost entirely Australian; a few Australian officers also were added to its medical staff for administrative purposes.

All convalescent dépôts were filled to overflowing: no space was left for convalescents at No. 14, and no room for them in British dépôts. Indeed, it became necessary again to utilise the Desert Mounted Corps rest camp. With its supplies augmented by extra medical comforts and with amusements provided by the Australian Red Cross Society, it served sufficiently the purpose of a convalescent dépôt. An Australian Convalescent Home for officers was established at Ghezireh.

Total light horse wastage in the campaign

There are unfortunately no reliable statistics indicating the comparative incidence of various types of disease in the Australian troops in Egypt. The total comparative wastage from wounds and disease, and the deaths from battle casualties and disease, are shown in the appended tables.[13]

WASTAGE FROM WOUNDS AND SICKNESS IN A.I.F.

In the Palestine Campaign.

Wounded in action.	Evacuated sick.
3,351	38,360

[13] In the Australian Army Medical Corps with the A.I.F. in the Palestine campaign the losses were as follow:—

	Killed in action.	Died of wounds.	Died of disease.	Died of other causes.	Wounded in action.
Officers	..	..	1	2	..
Other ranks ..	10	..	3	1	40

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LOSSES FROM BATTLE CASUALTIES AND DISEASE, ETC.

Killed in action.	Died of wounds.	TOTAL.	Died of disease.	Died of other causes.	TOTAL.
636	337	973	367	63	430

The number of deaths from disease from the 1st of April, 1916, to the 31st of December, 1918, was less than one half of that from battle casualties during the same period.[14] By far the greatest incidence of sickness was in 1918, and arose from malaria and influenza. Of the total deaths from disease in the light horse (367), over half (236) occurred during the six months July to December, 1918, 100 of these being due to malaria and 75 to pneumonia or broncho-pneumonia (only two being attributed directly to "influenza").

The average proportion of the A.I.F. constantly in hospital, sick and wounded, steadily increased during the course of the campaign and is shown in graph form. The highest number in hospital was reached on the 2nd of November, 1918, and was 3,567, equal to 20.8 per cent of the force at the time; the average for 1918 was 12.2 per cent.

Tabulated experience of light horse

The tables which show the admission to the two Australian and to No. 31 British General Hospital are of interest in that for the period covered they represent almost the total experience of the Australian force—which presumably would be that of other light horse formations under circumstances similar to those which have been closely followed in the preceding chapters. The disposal of cases at the Australian general hospital is amplified in a useful table compiled from the excellent records maintained at No. 14 A.G.H.

A special table, showing all deaths occurring from causes other than battle casualties, indicates the relative importance in respect of mortality, of diseases of infective and non-infective aetiology and those from "accidents and injuries." In respect of the latter class, the absence of deaths from heat and sunstroke is perhaps noteworthy. Though not represented among the deaths, venereal disease demands some special consideration on account of its strategical and national importance.

[14] The figures for the Australian mounted troops in South Africa (a very comparable experience) were 1.1 to 1.

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Graph No. 18

PERCENTAGE OF A.I.F. (EXCLUDING BOARDED INVALIDS) IN THE E.E.F. IN HOSPITAL

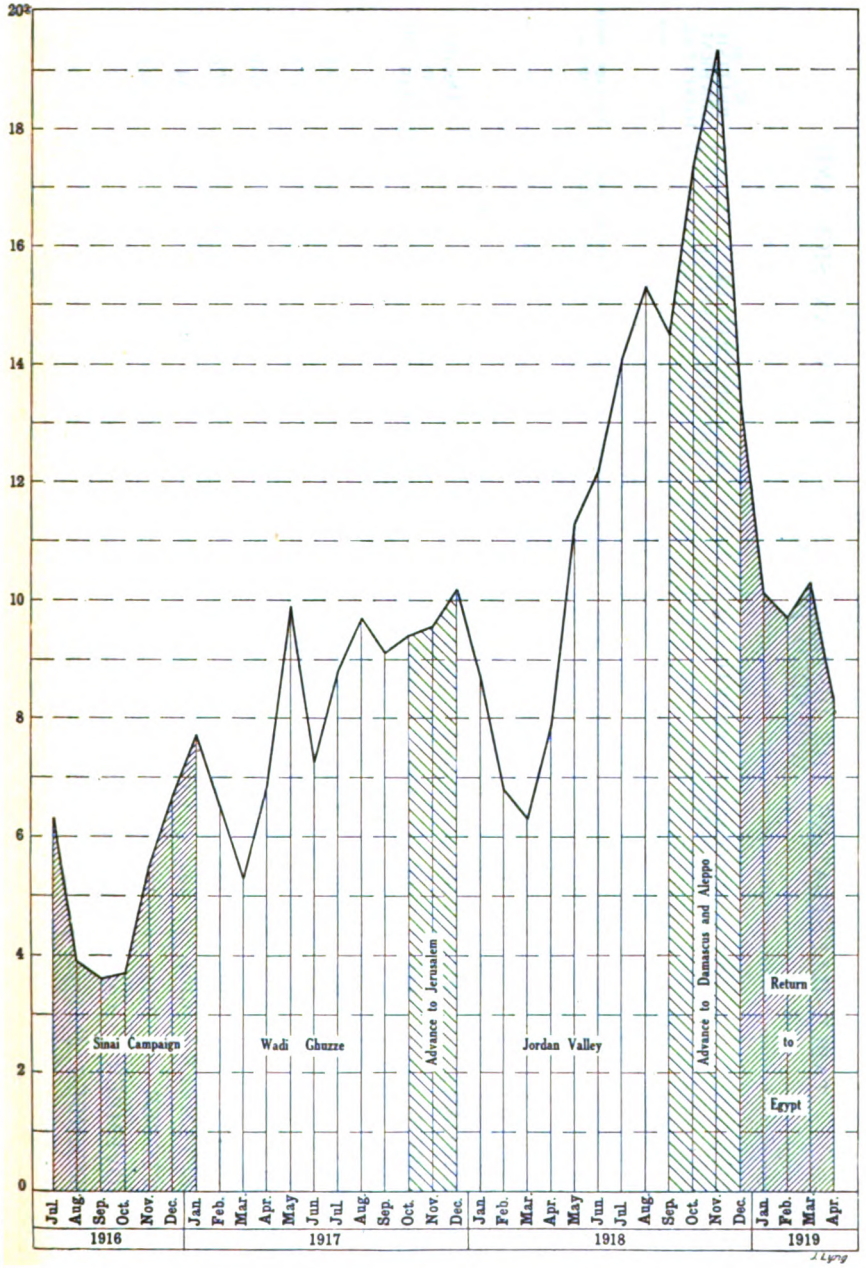

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TABLE ILLUSTRATING THE DISTRIBUTION OF AUSTRALIAN SICK AND WOUNDED DURING 1918.

	No. 14 AUSTRALIAN GENERAL HOSPITAL.				No. 2 AUSTRALIAN STATIONARY HOSPITAL.				No. 31 BRITISH GENERAL HOSPITAL.
	Admissions.			Average beds occupied.	Admissions.			Average beds occupied.	Average beds occupied.
	Medical.	Surgical.	Total.		Sick and wounded.	Venereal.	Total.		
JANUARY ..	234	97	331	785	383	87	470	364	Details not obtainable
FEBRUARY	494	265	759	764	326	87	413	361	
MARCH ..	344	208	552	609	268	146	414	351	
APRIL ..	796	613	1,409	980	324	164	488	358	
MAY ..	941	491	1,432	1,387	191	151	342	368	393
JUNE ..	822	173	995	1,489	270	177	447	384	314
JULY ..	1,066	242	1,308	1,540	160	261	421	405	374
AUGUST ..	1,104	133	1,237	1,530	222	239	461	426	687
SEPTEMBER	1,164	192	1,356	1,448	269	131	400	454	443
OCTOBER ..	1,533	177	1,710	1,621	395	170	565	441	442
NOVEMBER	1,051	74	1,125	1,742	456	209	665	479	585
DECEMBER	752	131	883	1,555	341	157	498	471	277

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TABLE ILLUSTRATING THE WORK OF No. 14 AUSTRALIAN GENERAL HOSPITAL DURING PERIOD NOVEMBER, 1917, TO MAY, 1919.

	—	ADMISSIONS—Medical.	ADMISSIONS—Surgical.	Total admissions.	Average beds occupied.	Total discharges.	Average daily discharges.	Average days in hospital.	Percentage discharged to convalescent depôts.	Percentage discharged to duty.	Percentage discharged to England or other hospitals.	Percentage discharged for return to Australia.	Number of Australians boarded. Class "C."	Total deaths.	Percentage of deaths to discharges.
1917.	NOVEMBER	720	754	1,474	847.6	1,297	43.2	33.8	39.09	24.82	1.78	34.31	103	9	.69
	DECEMBER	613	332	945	1,038.8	847	27.3	29.9	67.2	29.6	2.9	.3	41	7	.8
1918.	JANUARY ..	234	97	331	785.6	862	27.8	32.8	55.3	28.1	1.3	15.3	253	2	.23
	FEBRUARY	494	265	759	764.6	641	22.8	45.1	45.5	11.5	1.9	41.1	108	8	1.24
	MARCH ..	344	208	552	609.3	512	16.5	31.1	76.5	17.7	5.8	..	28	1	.19
	APRIL ..	796	613	1,409	980.2	887	29.6	26.0	76.3	19.3	2.1	2.3	170	7	.78
	MAY ..	941	491	1,432	1,387.1	1,168	37.6	28.4	79.5	12.3	8.11	.09	135	18	1.54
	JUNE ..	822	173	995	1,489.2	966	32.2	33.9	79.1	18.5	2.4	..	61	5	.51
	JULY ..	1,066	242	1,308	1,540.5	1,295	38.8	43.6	65.2	15.6	1.1	18.1	148	2	.16
	AUGUST ..	1,104	133	1,237	1,530.9	1,495	48.2	38.8	38.6	21.1	22.5	17.8	106	7	.46
	SEPTEMBER	1,164	192	1,356	1,448.1	1,222	40.1	33.0	78.56	19.48	1.96	..	16	3	.24
	OCTOBER ..	1,533	177	1,710	1,621.6	1,409	45.4	33.7	80.4	15.7	3.76	.14	160	21	1.49
	NOVEMBER	1,051	74	1,125	1,742.1	1,188	39.6	33.8	68.5	27.4	4.1	..	111	10	.84
	DECEMBER	752	131	883	1,555.6	1,331	42.9	43.0	44.9	17.9	15.0	22.2	387	9	.68
1919.	JANUARY ..	721	100	821	989.3	1,353	43.6	44.1	28.0	12.3	3.5	56.2	157	3	.22
	FEBRUARY	646	137	783	1,009.1	348	12.4	29.9	22.9	35.0	9.2	32.9	49	5	1.44
	MARCH ..	564	93	657	794.1	1,250	40.3	35.2	4.4	38.4	2.32	54.88	915	2	.16
	APRIL ..	826	129	955	594.7	940	31.3	25.8	1.38	19.8	1.42	77.4	371	2	.21
	MAY ..	649	89	738	618.1	616	19.8	20.3	2.92	46.92	.56	49.6	282		

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DEATHS AMONG MEMBERS OF A.I.F., WHILE SERVING IN THE E.E.F., FROM CAUSES OTHER THAN BATTLE CASUALTIES.

(Period July, 1916, to September, 1919.)

—	1916. Quarters.		1917. Quarters.				1918. Quarters.				1919. Quarters.			Total.
	3rd.	4th.	1st.	2nd.	3rd.	4th.	1st.	2nd.	3rd.	4th.	1st.	2nd.	3rd.	
Infectious Diseases.														
Gastro-intestinal—														
Enteric	1	2	1	1	1	..	..	5	2	1	..	..	..	14
Dysentery	..	..	..	..	..	1	..	1	4	17	..	..	..	23
Infectious diarrhœa	..	..	..	..	..	..	..	..	..	2	..	..	..	2
Cholera	2	..	..	..	..	..	..	..	..	5	..	..	..	7
Inspiratory and naso-pharyngeal—														
Influenza	..	..	..	..	..	1	..	..	..	2	2	..	..	5
Pneumonia	2	1	2	2	4	2	1	1	7	45	11	1	..	79
Pneumonia and broncho-pneumonia	..	..	..	1	..	..	..	..	1	22	7	1	..	32
Bronchitis	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Cerebro-spinal fever	..	2	..	..	1	..	4	..	2	2	2	..	..	13
Diphtheria	..	..	..	..	..	..	..	..	1	1	..	..	..	2
Small-pox	..	..	..	..	..	..	..	1	..	..	2	2	..	5
By animal carriers—														
Malaria	..	..	..	..	..	3	..	1	4	96	2	2	1	109
Typhus	..	..	..	..	..	..	..	1	..	1	..	1	..	3
Relapsing fever	..	..	..	..	..	..	1	..	..	..	1	1	..	2
Tuberculosis	..	..	..	..	..	1	3	1	..	..	1	1	..	5
General septic	1	1	..	..	..	1	..	1	1	2	..	..	..	10
Abscess brain	..	..	..	..	..	..	..	1	..	..	..	..	..	1
P.U.O.	..	..	..	..	..	..	..	..	..	4	..	..	1	5
	6	6	3	4	6	9	9	13	22	201	28	9	2	318

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Non-infectious diseases.														
Nervous system (cerebral hæmorrhage, neuritis)	..	1	..	..	..	..	1	1	..	1	..	..	..	4
Mental and moral (insanity, alcoholism, and self-inflicted wounds)	1	..	..	..	1	..	..	2	2	..	1	1	..	8
Gastro-intestinal (dyspepsia, appendicitis, obstruction, peritonitis) ..	2	..	2	..	..	1	..	3	..	2	..	..	..	10
Lungs and pleura (fibrosis) ..	..	..	..	..	..	..	..	..	..	..	1	..	..	1
Cardio-vascular (valvular disease, heart failure, pericarditis, arterio-sclerosis)	2	1	..	..	..	1	..	..	..	2	3	1	..	10
Genito-urinary (Bright's disease nephrectomy, cystitis)	2	..	..	..	..	..	..	..	2	2	1	1	..	8
Diathesis, etc. (pernicious anæmia)	..	2	..	..	..	..	..	..	..	..	..	..	..	2
Venoms and poisons (snakes, arsenical)	1	..	..	..	..	..	..	1	..	..	..	..	..	2
Tumours (malignant)	..	..	..	..	..	..	..	1	..	..	..	..	..	1
Debility (asthenia)	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Other diseases (dropsy, unspecified)	..	..	..	..	..	..	..	..	..	1	1	..	..	2
	8	4	2	..	1	2	1	8	4	9	7	3	..	49
Accidents and injuries	2	5	4	7	2	9	1	9	8	5	5	6	..	63

Total deaths from causes other than battle casualties = 430. The average strength of the Force was 17,500.

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Venereal disease

The arrangement whereby all Australian (and most New Zealand) light horsemen suffering from venereal disease were treated at a single centre—during most of the campaign at No. 2 Stationary Hospital—permitted exact investigation of certain aspects of the problem. A careful study of the records showed that the average proportion of the force constantly under treatment for these diseases was 1.13 per cent; the highest at any time was 2.35. The following table gives the experience of the campaign in trimonthly periods:—

PERCENTAGE REMAINING IN HOSPITAL.

—	1917.	1918.	1919.
January	.94	.79	1.45
April	.57	.90	2.21
July	.89	1.34	
October	.64	1.21	

From September, 1916, to June, 1919, the total admitted to hospital for venereal disease was 2,607; the total number of troops from whom these cases arose was not less than 23,000, and this proportion of 11.3 per cent is considerably lower than that frequently estimated for the same disease among the civil population in large cities. The following table shows the rate per 1,000 per annum in the Egyptian Expeditionary Force:—

—	British.	Australian.	Rate in E.E.F.
1916	..	..	80
1917	23	56[15]	27
1918	44	82	44
1919[16]	79	116	65

Various reasons have been advanced to account for the greater incidence of venereal disease among the Australian troops than among the British. The only factor of importance

[15] Includes New Zealanders.
[16] Period of 17 weeks only. The rate shown for the E.E.F. is inclusive of Indian and other forces.

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which did actually distinguish the Australian troops from other forces in this regard was their higher rate of pay—which was known to all concerned. The disproportion becomes more noteworthy in view of the efforts made in the Australian force for prevention. Egypt was responsible for 58 per cent, Palestine for 32 per cent of infection, the remaining cases arising in Australia, England, and other countries. A large number came from Jerusalem, where, as the result of the extreme poverty of the inhabitants, prostitution was very common.

The following table shows the relative frequency of the diseases and the average stay in hospital for each:—

—	Proportion.	Average days in hospital.
Gonorrhœa	58 per cent	53 days
Syphilis	15 „ „	47 „
Chancroid, etc. ..	27 „ „	23 „

A special officer was placed in charge of treatment and remained responsible for its supervision throughout the campaign. An investigation made in 1919, before repatriation, as to signs of disease in men who had been discharged cured indicated that very satisfactory results had been achieved.

Prophylaxis

It is not proposed here to comment on the pros and cons of the much debated question of the value of prophylactic treatment and other efforts at prevention; only a brief statement is made of what was done in Egypt. Though on return from Gallipoli some action in this direction had been taken in each of the three brigades, the first general provision made after 1915 was at the rest camp at Port Said in October, 1916. Throughout the rest of the campaign prophylactic treatment was given at various centres at the base, and, during the later part, in medical units in the field, in addition to equipment for self-disinfection. At seven centres (in Cairo and Port Said) the treatments numbered 51,205 and were carried out by specially trained orderlies. In respect of results it must be said that, while

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individual figures showed in some cases a surprising degree of protection, the available data are not sufficient to make a definite pronouncement.[17]

Educational methods comprised the issue of a card of instruction and a campaign, ordered by General Headquarters, which consisted in a series of lectures by chaplains on the ethical side and by selected medical officers on the medical. This action was not followed by any appreciable decrease in the venereal rate.

Influenza

The enormous preponderance of deaths from malaria and pneumonia and the importance of the former from the national, as from the strategical, point of view make some special reference to them desirable here. The epidemic of influenza was strangely involved with that of malaria. The coincidence in epidemic form of these two diseases, each of which is notorious not less for its varied pathological concomitants than for the protean character of its symptom-complex, brought about a statistical confusion which Australian records do not suffice to resolve.[18] Only five deaths in the A.I.F. during the campaign were attributed to influenza: but at the time of the epidemic a very heavy death-rate appears under "pneumonia" and "broncho-pneumonia." Speaking generally, it would seem that the epidemic was less severe among the troops in Egypt than among those in Europe.

Malaria

Malaria, on the other hand, played a great part in the strategic as well as the medical history of this campaign. In the A.I.F. it was—for the whole period of the campaign—second only to venereal disease as a cause of incapacitation and was by far the most important as a cause of invaliding and lasting incapacity. In the last year of the war there was built up in the Egyptian Expeditionary Force a very highly organised system to deal with every aspect of the disease—prevention, diagnosis, and

[17] For example, at Port Said rest camp, from approximately 10,000 treatments only 6 men were ascertained to have developed venereal disease. Every effort was made to eliminate error in the investigation, to which, however, such an inquiry is very liable. 3 per cent is stated by British and American writers to be an average incidence after exposure to risk.

[18] It appears in some cases to have escaped notice by clinicians that the discovery of the plasmodium in the blood of a sick man is only presumptive though strong evidence that his "disease" is malaria. It may be, indeed, that the importance of malaria was greater as a contributing than as a direct cause of death.

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treatment — immediate, subsequent, and consecutive. The first two aspects belong to the front line and have received attention in earlier chapters. Early diagnosis by blood examination permitted prompt and intensive treatment, which was continued on the lines of communication till the base was reached. For the malignant form of malaria it was found necessary that treatment should be in the form of intramuscular or intravenous injection of quinine, which, when administered by the mouth, had little or no effect on the malignant type. With efficient early treatment, cure was almost certain. The usual custom was to give daily ten grains of quinine bihydrochloride intramuscularly. Not only was early treatment imperative, but it was found necessary to continue it for long periods, especially in the benign variety.[19]

At No. 14 General Hospital careful clinical and pathological studies were made of the disease.[20] Out of 80 deaths (of which 58 were among Egyptian labourers or Turkish prisoners of war) 73 were from malignant tertian, 6 from benign tertian, and one from a quartan infection. "Only a small number of cases," it was stated, "in base hospitals died from uncomplicated malaria, namely, 16.4 per cent; in the remainder death was due to secondary infection, bronchopneumonia and bacillary dysentery being the most frequent (59 and 17.7 per cent respectively)." Three intramuscular injections of twelve grains of quinine bihydrochloride were found sufficient to cause, at least temporarily, a complete disappearance of the parasites from the blood. The efficiency of intravenous injection in the pyrexial period, and the importance of adequate dilution in both forms of injection, were emphasised.

[19] For some time troops, when returned to their units from hospital, escaped continued quinine medication and suffered relapses. It was then arranged that on discharge "malarial slips" should be posted in each man's pay-book, stating the treatment recommended when he returned to his unit. Continued treatment was thus ensured.

[20] Embodied in a paper by Dew and Fairley, read at the Naval and Military Section, Australasian Medical Congress 1921 and published in the transactions. It embodied observations on 1,135 cases. In the same transactions appear papers on the prophylactic and diagnostic aspects of the disease in Palestine by the officers who had commanded No. 7 (Anzac) Sanitary Section and Anzac Field Laboratory, Major Harvey Sutton and Major Eustace Ferguson.

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Certain other diseases—in particular bilharziasis—though practically of no importance from the military point of view, assumed great interest and the highest significance when the question arose of their possible establishment in Australia. Later these will be considered from this point of view.[21] Reference should, however, be made here to the clinical and pathological studies in bilharziasis and dysentery made in the Australian hospitals in Egypt. In the former these were the prelude to no less important work continued after the war. The importance of the observations made at No. 3 Australian General in 1916 by Major F. D. H. B. Lawton, A.A.M.C., on the clinical features of initial bilharzial infestation (particularly rectal) and of the biological and pathological studies of Major N. H. Fairley, A.A.M.C., received general recognition.[22]

Bilharziasis

With the Armistice the task of the light horse had been fulfilled, but not that of its medical service, which had still to deal with the heavy accumulation of sick in addition to the medical problems special to the repatriation of the force. Consideration of these latter is postponed till the narrative of the A.I.F. is complete. Pending arrangements for repatriation, the Anzac Mounted Division went to Rafa. The Australian Mounted Division, employed on police work, was for a time scattered over northern Syria. Concentration for return to Australia was completed when in February, 1919, the Egyptian insurrection scattered the light horsemen far and wide to help in maintaining order in Egypt.

After the Armistice

No. 14 General Hospital remained at Port Said till the end of 1918, when it returned to Cairo, and on the 4th of

[21] *In Vol. II.*

[22] Clinical observation led to important and interesting observations on the biochemical aspects of the disease. The frequency with which urticaria, fever, and other symptoms were observed in the early stages of bilharziasis suggested to Major Fairley the presence of some circulating toxin, the product of maturing or adult parasites. Using as antigen an alcoholic extract of the livers of infected snails, and applying the "Bordet-Gengou" method of investigation by complement-fixation, Major Fairley, working at No. 14 Australian General Hospital, was able in June, 1917, to demonstrate the presence of immune body against such a toxin and to report to the military authorities the discovery of a positive complement-fixation test. The practical value of this observation was increased by the publication in Sept., 1918, by J. B. Christopherson of his important discovery that in intravenous injections of tartar emetic a method was opened up of internal disinfestation of this otherwise ineradicable parasite, cure of the disease, and radical prophylaxis. Consideration of this aspect of this interesting national and biological problem is subject matter for the second volume of this work. (Vide *Medical Journal of Australia*, 29 March and 5 April, 1919.)

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January, 1919, was re-established at Abbassia Barracks. In February it took over the venereal clinic from No. 2 Stationary Hospital, and in April the latter cleared all its cases to Cairo and closed down. In May the General Hospital was reduced to 1,040 beds, and in July it also closed. The rest camp at Port Said continued to serve its dual purpose till June, 1919, when it closed also. It had proved a valuable agent in promoting the health of the Desert Mounted Corps and especially of the Australian troops.

The price of victory

The military life of the Australian citizen soldier ends with the medical board. With the Armistice the policy "of return to Australia if likely to be unfit for more than six months" was changed: two months' unfitness for duty now became grounds for invaliding. Early in 1919 the period was reduced to one month. During the four months (December, 1918–March, 1919) which followed the change from the six months policy, 2,522 invalids were returned to Australia—a number greater than the total during the two previous years. In all, during and after the campaign, 6,387 light horsemen were sent back to Australia crippled in varying degrees. With 1,403 left behind for ever, they formed the immediate human cost to Australia of this campaign: the final total is still incomplete. In minimising this national loss, the medical personnel of the A.I.F. continue to play their part now in a civil guise, as formerly they did side by side with their comrades in the field of war.

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PART III

THE OCCUPATION OF GERMAN NEW GUINEA

by

COLONEL F. A. MAGUIRE, D.S.O., V.D.

and

CAPTAIN R. W. CILENTO

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PART III

THE OCCUPATION OF GERMAN NEW GUINEA

THIS territory comprised the north-eastern portion of the main island of New Guinea, and the large group of islands spread, somewhat disconnectedly, eastward.[1] The story of the naval and military expedition by which it was captured has been fully told in *Volumes IX* and *X* of the *Official History of Australia in the War.* It would therefore, under ordinary circumstances, only be necessary to record in this volume such medical features of that expedition as have a permanent value or interest. This detached military episode was, however, destined to become more than a transient and comparatively insignificant incident; the task of the Australian military force was less to seize the islands than to govern them. The original body of troops gave place after four months to a specially organised tropical force; this steadily evolved, through a number of adaptations to circumstances, into the civil administration which, under mandate from the League of Nations, governs the country to-day.

[1] *See map at p. 804; and p. 806, footnote 17.* The "Protectorate of German New Guinea," as it was known, comprised "The Old Protectorate" (the north-eastern portion of the mainland of New Guinea, the Bismarck Archipelago, and German Solomon Islands), and the "Island Territory" (certain scattered groups of islands, for the most part north of the Equator—the Marianne, Caroline, Pelew, and Marshall Islands): in all 93,000 square miles. In 1914 the population of the Territory consisted of 1,027 Europeans (almost exclusively German), 1,681 Asiatic aliens, and some 4 to 500,000 natives (estimated). For a detailed account of the geographical features of the Territory, and of the circumstances under which it came under the control of Germany, the reader is referred to the *Official History of Australia in the War, Vol. X.* Its ethnology and sociology, and the medical problems involved in the "civilising" of this part of the Pacific, will be found well presented in the annual reports of the Administrator to the League of Nations for 1927-8 and 1928-9, and in various special medical reports and memoranda published by the Commonwealth Government.

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CHAPTER I

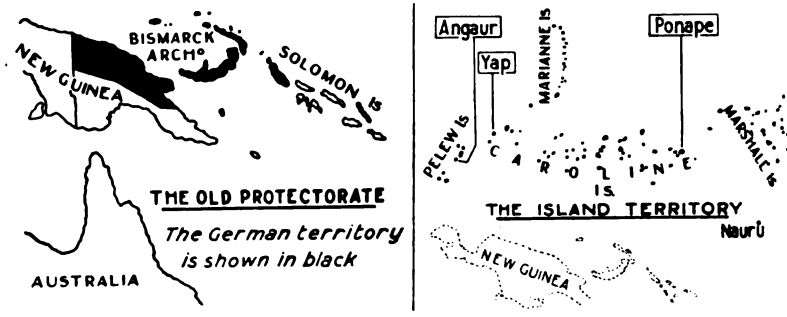
THE CAPTURE OF RABAUL

By Colonel F. A. Maguire.

Two days after the declaration of war the British Government suggested to the Governments of Australia and New Zealand that the seizure of certain German possessions in the Pacific would be an important Imperial service. A voluntary force, naval and military, was hastily raised in Australia and, accompanied by a small medical detachment, on September 11th landed in New Britain. After some sharp fighting—in which was sustained the first A.A.M.C. casualty in the war—the German Governor and his force surrendered, and the administrative capital of the colony, Rabaul, was occupied.

* * *

On the 6th of August, 1914, two days after the outbreak of war, the Governor-General of the Commonwealth of Australia received from the Secretary of State for the Colonies a cable—



If your Ministers desire and feel themselves able to seize German wireless stations at Yap in Marshall Islands, Nauru on[1] Pleasant Island, and New Guinea, we should feel that this was a great and urgent Imperial service. . . .

[1] This is the official version. Another version gives "or" for "on." Both put Yap in the Marshall Islands: it is actually part of the Caroline group.

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It was decided by the Australian Government to raise and despatch a combined naval and military force for this purpose. The details of the force were fixed by the Naval and Military Boards in Melbourne; it was to consist of six companies of volunteers from the Royal Naval Reserves (British and Australian),[2] a battalion of infantry of eight companies at war strength, two sections of machine-guns, a signalling section, and the "necessary complement" of the Australian Army Medical Corps. The total personnel comprised 500 naval and 1,084 military.

The A.N. and M.E.F.

Speed being an important feature of the undertaking,[3] it was thought advisable to carry out the preparations for the expedition in Sydney. The military personnel, raised by voluntary enlistment "for service out of Australia" for a period of six months, was recruited from the 2nd Military District (New South Wales); the naval section, organised by the Naval Board, was drawn from Queensland, New South Wales, Victoria, and South Australia.

On August 9th the Principal Medical Officer of the 2nd Military District received instructions from Defence Department Headquarters to assemble a "detail" of medical personnel to consist of 4 officers, 1 warrant officer, and 35 other ranks.[4]

The medical detachment

On August 10th the command of the force was given to Colonel William Holmes, and on the same day the Commandant of the 2nd Military District telephoned to Dr. N. R. Howse, V.C. (who was an honorary major in the Australian Army Medical Corps Reserve and was at this time in general practice at Orange) asking if he wished to be included in the forces being raised for service out of Australia. Major Howse reported next day to the P.M.O. and—in view of the opportunity afforded for early service—accepted

[2] The naval side will be dealt with in *Vol. II.*

[3] For a full appreciation of the naval, military, and political situation in the Pacific at this time, and for an account of the operations from both the naval and the military standpoints, see *Vols. IX* and *X* of the *Official History of Australia in the War.*

[4] No record is available as to the grounds on which this particular number of officers and rank and file was selected. It did not fit in with any establishment. No special provision was made for medical personnel with the Naval Reserve.

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command of the medical detachment to be raised with the "Force for the Pacific Islands,"[5] his designation being "Principal Medical Officer," with rank of Lieutenant-Colonel. The other medical officers selected were Captain F. A. Maguire,[6] from the 8th Citizen Force Field Ambulance, mobilised on August 4th, and Captains J. E. Donaldson and B. C. A. Pockley, young medical graduates of the Sydney University who had recently received commissions in the Australian Army Medical Service (Militia). A warrant officer[7] was appointed from the Australian Instructional Staff; the remainder of the personnel were drawn from those volunteering for the military detachment. All the men selected had either received Army Medical Corps (Militia) training or held some civil qualification in first aid and nursing; but although a small school of tropical medicine existed at Townsville (Queensland), none of the officers chosen had received any special training in tropical medicine and hygiene.

Little provision for tropical service

Officially the "detail" was equipped only with medical and surgical "panniers" and other mobilisation stores on the scale laid down for one section of a field ambulance. Lieutenant-Colonel Howse was told that the destination of the force was "German New Guinea,"[8] but he received no direction as to its probable distribution or the number of posts that might have to be occupied. Official information was moreover lacking with regard to the medical conditions likely to be encountered or the resources that might be available in the way of hospitals, transport, and medical supplies. On his own initiative therefore Howse made such general provision for a tropical campaign as was possible in the time available. A large supply of quinine was taken and some emetine; by special requisition a microscope was

[5] The official designation of the force was finally "The Australian Naval and Military Expeditionary Force," or "A.N. & M.E.F."

[6] *See Personal Index.*

[7] Warrant Officer H. Hazlett.

[8] The term included, not only the German portion of New Guinea and of the adjacent archipelago, but the Pelew, Marianne, Caroline, and Marshall Islands. The portion of New Guinea already administered by Australia was known, for distinction, as the Territory of Papua.

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114. A GROUP OF SYDNEY UNIVERSITY MEN BELONGING TO THE A.N. & M.E.F.

Photograph taken on board the *Berrima*, 1914. *Back row (left to right)*: Private G. M. Edwards, Sergeant W. R. Dovey, Corporal J. S. Miller, Private L. H. Lehmaier. *Centre row:* Corporal C. T. Collier, Privates H. L. Henley, J. B. Lane, F. Sandford, J. K. Henderson, Lieutenant C. E. Manning. *Front row:* Captains F. A. Maguire, B. C. A. Pockley, A. W. Ralston, Major R. H. Beardsmore, Captain J. E. Donaldson. Captains Maguire, Pockley (killed in New Guinea), and Donaldson (died following wounds received at Pozières) were medical officers, and Private Henderson (killed as a captain at Pozières) performed dental work.

Lent by Dr. F. Antill Pockley.

To face p. 784.

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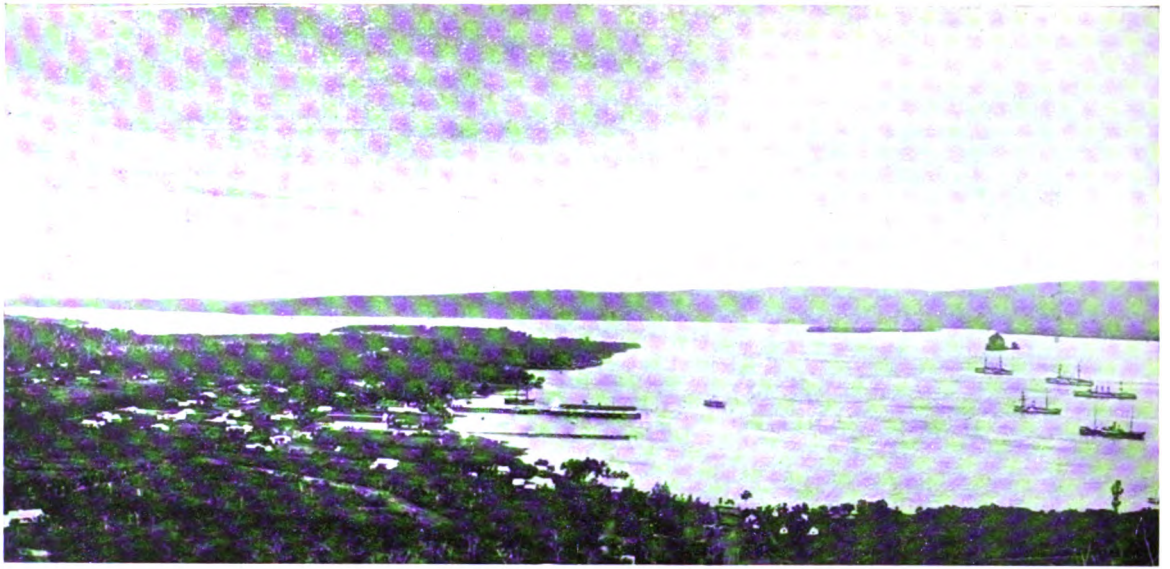

115. SIMPSON HARBOUR BEFORE THE WAR, WITH PART OF THE GERMAN PACIFIC SQUADRON AT ANCHOR

Rabaul on Simpson Harbour, the northern bight of Blanche Bay in New Britain, was the administrative centre of all the German possessions in the Pacific. The photograph shows the German cruisers *Scharnhorst*, *Gneisenau*, and *Nürnberg*, and another warship.

Lent by the Rev. J. H. Margetts.
Aust. War Memorial Collection No. H3340.

To face p. 785.

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added to the equipment. The Red Cross Society supplied hospital bags, medical comforts, and also certain necessaries such as mosquito netting and dressings.

Volunteer recruits

Good billets and headquarters were found in the buildings of the Royal Agricultural Society, in Sydney, whose Show Grounds provided ample space for training. Here recruits were attested, while the medical examination was carried out at Victoria Barracks. The standard of physical and mental fitness required for the force was a high one, being that laid down for enlistment in the Australian permanent forces.[9] A dental inspection of each man was carried out, as a voluntary and gratuitous service, by the Dental Association of New South Wales, and as much dental work was done as was possible in the time available. No official provision was made for a dental establishment with the force, but Lieutenant-Colonel Howse secured the enlistment as a private in the medical detail of a fourth-year undergraduate in dentistry of the Sydney University, who provided himself with a small kit of dental instruments.[10]

Dental and medical preparations

All ranks were inoculated against typhoid fever, the procedure being completed on board ship, where also vaccination against small-pox was carried out.[11]

The uniforms and clothing supplied were entirely unsuited for wear in the tropics, being of wool and heavy. As in the A.I.F., boots were of good quality, and their fitting, together

[9] It is, however, recorded that, in spite of the large numbers presenting, not a few men were passed who were the subjects of physical defects which led to early breakdown, among these being large varicocele, hernia, and weak appendicectomy scars. Three men also were discovered later to be subject to epilepsy, a fact which had been concealed by them on enlistment.

[10] A material amount of disability—not to speak of inconvenience and suffering—was saved by the work done by this dentist, who between Aug. and Dec., 1915, performed some 108 extractions, 160 fillings, and some 50 dental dressings for abscess, etc. Through lack of equipment and dental stores no denture work could be done, and at least five men were made edentulous and ultimately unfit by breaking their plates. A strong report on the need for effective dental treatment on service, made by Maj. Maguire on his return to Australia in 1915, attracted the attention of the Minister for Defence, and may have influenced the subsequent appointment of dental surgeons to the A.I.F.

[11] Here it may be recorded that no case of small-pox, and not more than two to three mild cases of typhoid, occurred in the force. But small-pox is not endemic in New Guinea, and has, indeed, only been introduced once (1897), while typhoid is rare.

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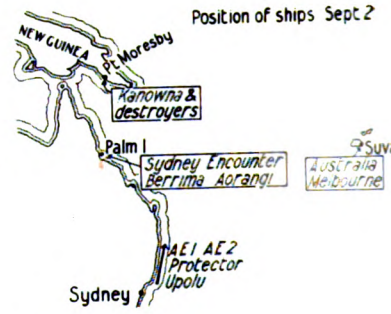
with foot discipline, occupied the close attention of the medical officers during the eight days that the force remained in Sydney.

For transportation to the seat of war the P. and O. liner *Berrima* was put into commission as an auxiliary cruiser, armed, and hastily fitted up in dock to act as a troop-transport. Her large holds provided fine troop-decks; lavatory and latrine accommodation was ample, and, though deck space for exercise was small, the vessel was well suited for the purpose. A liberal supply of fresh water was available and was an important factor in the excellent health record which was achieved. On August 18th, while the *Berrima* was still in dock at Cockatoo Island, the troops embarked; fatigues quickly cleared the dock side of the huge piles of stores that awaited shipment; and on the 19th the expedition left for the north. On August 22nd, off Sandy Cape, H.M.A.S. *Sydney* was picked up as escort, and on the 24th the force reached Palm Islands north of Townsville. Here the expedition remained till the rest of the Australian fleet should have assembled for the expedition.[12]

Berrima sails Aug. 19th



In Sydney little time had been available for training, but on the voyage up the Australian coast and during the stay at Palm Islands all ranks of the force were instructed in personal hygiene, particularly in the precautions required to preserve health in the tropics. During the ten clear days that the *Berrima* waited, detachments of all arms went ashore daily for training and exercise. Though chafed at by the force, this respite did much to promote the health of these young troops,

A brief period of training

[12] H.M.A.S. *Australia*, flagship of Rear-Admiral Patey, who commanded the Australian Squadron and was in general command of the expedition, was at this time engaged in escorting a New Zealand force to Samoa.

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few of whom had previously been in the tropics.[13] On September 2nd the convoy sailed, and on the 4th arrived at Port Moresby in Papua, where Rear-Admiral Patey took charge of the expedition. Here had already arrived from Thursday Island the *Kanowna* with 500 Queensland troops, volunteers for the expedition from the Militia and Citizen Force which had been mobilised in Townsville and sent to augment the garrison of Thursday Island.[14] The P.M.O. accompanied Colonel Holmes on his inspection of these troops and their supplies. He found on board an adequate militia medical detachment under efficient officers; the troops were keen and enthusiastic, but the force—which had been raised very hastily—was found to be without the training, clothing, or equipment suitable for work in the tropics. The Citizen Force trainees were still for the most part undeveloped youths, and of the rest of the force not a few had physical disabilities which in the opinion of the P.M.O. unfitted them for active service. Medical stores were defective; indeed, the supply of drugs and dressings on board was already nearly exhausted. The *Kanowna*, a coastal steamer, was unsuited for use as a troopship without preparation, and for this there had been no opportunity. Moreover the ship's company—who had of course not been forewarned that they would be thus diverted for active service—were not favourably disposed towards the troops, and, in spite of the efforts of the officer in command and the Senior Medical Officer, the ship was dirty and insanitary. Colonel Holmes reported to the admiral that he considered "the whole unit unfitted for active service" and recommended that "they be not taken further, but returned at once to the State to which they belong." It was, however, decided by the admiral that the *Kanowna* should accompany the convoy with her troops as a reserve, her stocks being replenished from the *Berrima*.[15] As a precautionary

A detachment from Queensland

[13] Discipline was good, and it may be stated here that during the four weeks spent by the troops and ratings in the *Berrima* there was no epidemic and only one case of severe illness (lobar-pneumonia).

[14] *See Chapter II, Part I.*

[15] Owing to a mutiny among the firemen on Sept. 7, the *Kanowna* was forced to return to Townsville, though the trainees on board, bitterly disappointed, offered to stoke the ship. The Queensland contingent was thus withdrawn from the expedition.

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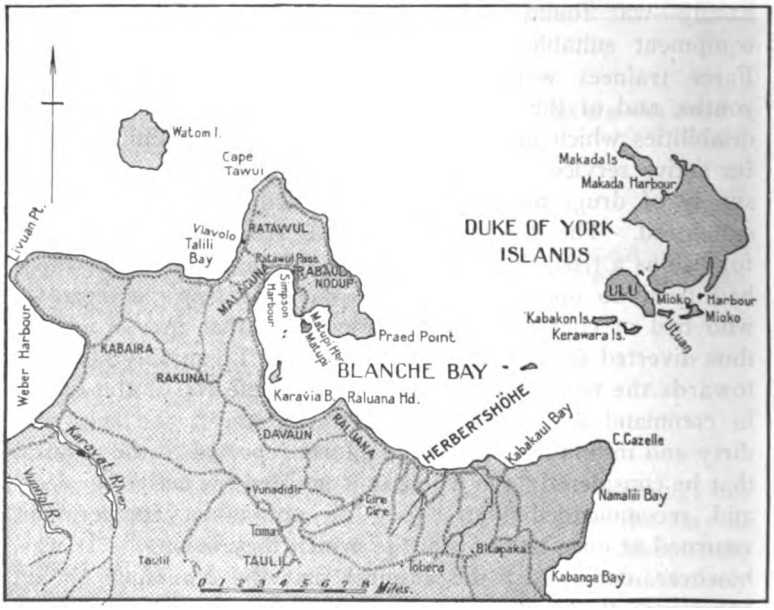
Naval and military rendezvous

measure against the contraction of tropical disease, the troops were not allowed ashore in Port Moresby. On September 9th the squadron assembled at a rendezvous near Rossel Island lagoon, and here, at a conference between Admiral Patey and Colonel Holmes in the flagship, a strategic scheme was agreed upon, and tactical plans were drawn up for an attack on Rabaul and Herbertshöhe[16] on the island of New Britain, the headquarters of the German administration in the Pacific.

The local geography of the settlements on Blanche Bay will be clear from the accompanying map. The immediate



New Britain: Rabaul and environs

object of the landing was twofold—first, the capture of a wireless station known to be situated in the proximity of the German settlements on Blanche Bay; second, to locate and bring to surrender the German Governor. Two landings

[16] Now Kokopo.

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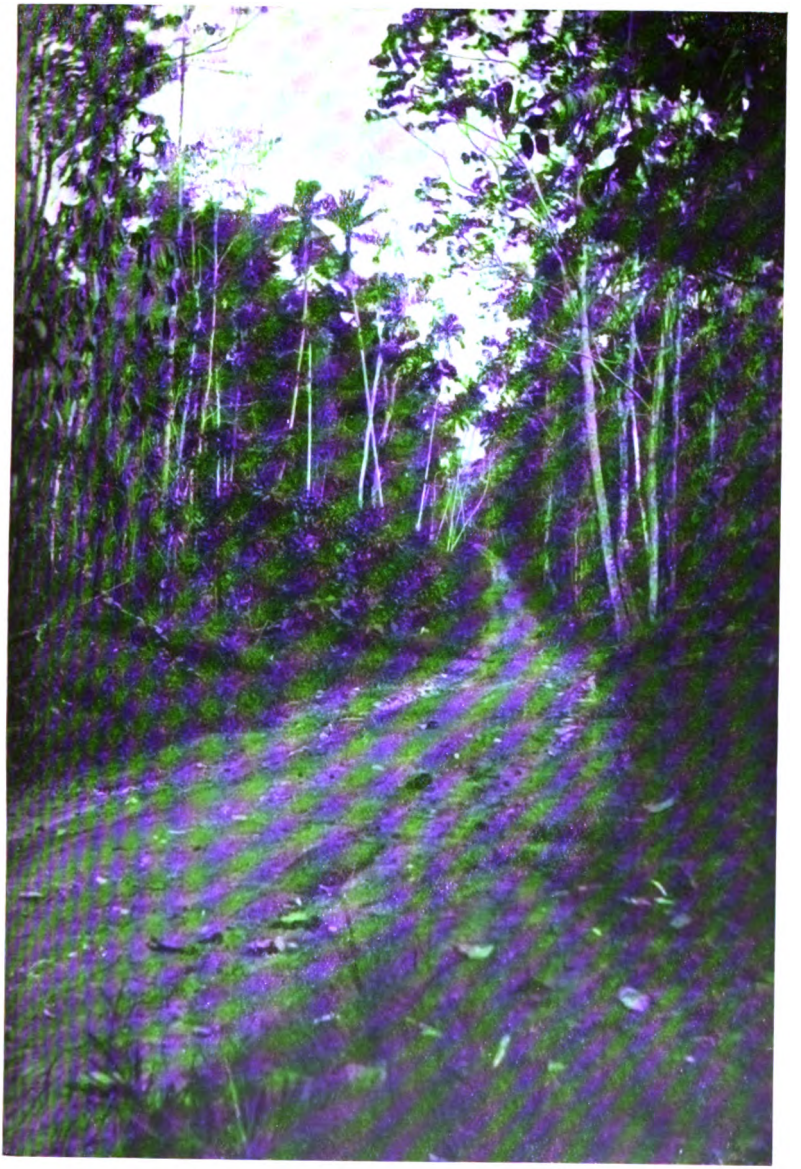

116. The Bitapaka Road—Position of the first trench

Lent by Lieut.-Colonel W. W. R. Watson, A.N. & M.E.F.
Taken in 1914.

To face p. 788.

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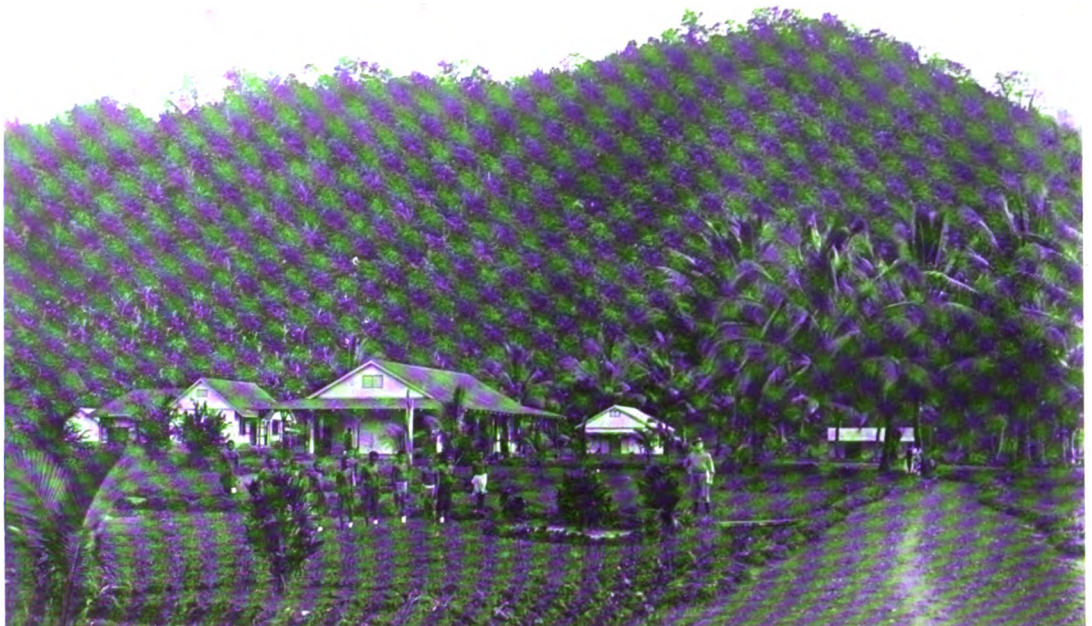

117. The native hospital at Kieta, Bougainville

Taken by T. J. McMahon, Esq.

To face p. 789.

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were arranged, one at Herbertshöhe, the old capital of German New Guinea, the other at Kabakaul. The immediate direction of the naval and military landing forces was placed by the admiral in the hands of Colonel Holmes as commander of the expedition, but the orders governing the medical arrangements for the landing came from Admiral Patey. The medical department was not consulted in connection with them, and the Principal Medical Officer supplied only such personnel and equipment as was asked for.

Plan of landings: medical arrangements

The place of honour and, as it happened, the whole of the fighting fell to the Naval Reserve, fifty of whom were placed in the *Sydney* to act as advanced landing parties, to be accompanied by one medical officer and an orderly with some equipment. At daylight on September 11th, after the harbour had been reconnoitred by the destroyers for mines and ships of war, half the advanced party was landed from destroyers, without opposition, on the pier at Kabakaul, and, accompanied by Captain B. C. A. Pockley, A.A.M.C., and a medical orderly, pushed inland along the Bitapaka road in search of the wireless station and the enemy. The other half, together with a naval party carrying a letter from Patey to the acting Governor, Dr E. Haber, landed at Herbertshöhe; it was accompanied by a medical orderly specially detailed by the P.M.O. This party met with no opposition, but failed to locate either the Governor or a wireless station.

Landings by Naval Reserve

It was otherwise with the Kabakaul party. The German officer in command of the force in New Britain had under him 51 German Reservists and partly trained white settlers and 240 natives who had been drilled and instructed in the rudiments of civilised fighting. His plan of defence against the small raiding parties—the only attacking force expected—was to hold up the enemy by means of entrenchments and road-mines some two miles inland along the road to the wireless station (which was situated at Bitapaka), and at the same time to attack him from the rear. The terrain—which can be judged from the illustration—strongly favoured this line of defence. The first

Sharp fighting

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part of the plan was successful; Lieutenant Bowen's detachment was held up and sustained a number of casualties. In the sharp fighting that ensued Captain Pockley, who had advanced with the firing line, was shot through the spine.[17]

Captain Pockley, A.A.M.C., mortally wounded

In view of the resistance encountered, two companies of the Naval Reserve were landed in support and soon became engaged; among their casualties was Lieutenant-Commander Elwell, R.N. (killed). With this party was landed from the *Australia* a small medical detachment which formed a dressing-station on the pier at Kabakaul and rendered first aid and arranged transport to the ships. The considerable resistance that had been intended by the enemy was, however, abandoned when the dimensions of the forces available for landing became known. The greater part of the defending force retired inland to Toma, and the wireless station was captured by nightfall.

Meanwhile at 3 p.m. four companies of infantry, with which went a medical detachment, were landed from the *Berrima* at Herbertshöhe, but failed to gain touch with the enemy.

In all two officers and four seamen were wounded in the day's fighting; of these, two (including Captain Pockley) died; four others were killed in action. The wounded, together with a number of wounded prisoners, were taken to the *Berrima,* where they were tended till the arrival, on September 15th, of the hospital ship *Grantala,*[18] to which they were transferred.

On September 12th the *Berrima* entered Simpson Harbour, and Rabaul and Herbertshöhe were garrisoned. On the 13th Colonel Holmes announced by public proclamation the occupation of German New Guinea. The acting Governor,

[17] The circumstances of this, the first casualty sustained in the war by the Australian Army Medical Corps, are such as to call for some detail. In the absence of stretcher-bearers with the detachment, wounded men were sent back in charge of the medical orderly and of comrades, to one of whom Captain Pockley lent his brassard. Advancing without it after dressing by the roadside the smashed hand of a German non-commissioned officer, this very gallant young officer was hit by a volley from the defending force. A full account of the event through which he lost his life is given in the *Official History of Australia in the War, Vol. X, p. 59.* It is there stated that his action "was consonant with the best traditions of the Australian army, and afforded a noble foundation for those of the Australian Army Medical Corps in the war."

[18] This will be referred to in *Vol. II, Naval Section.*

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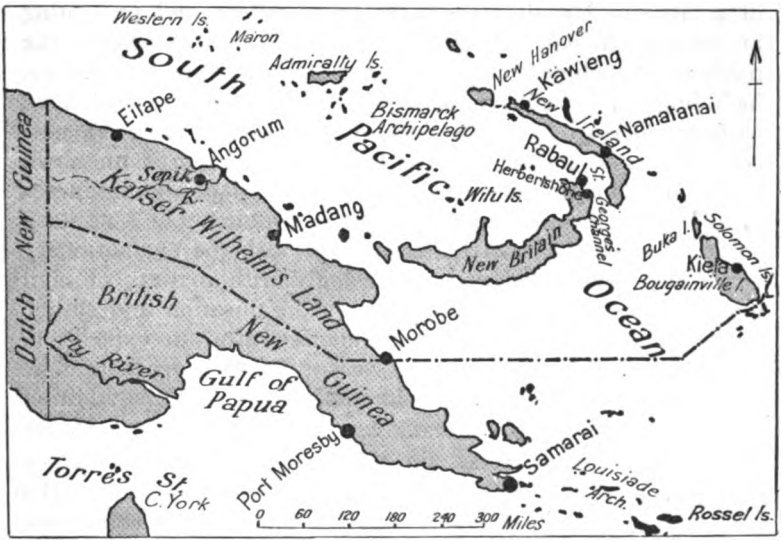
together with his staff had retreated to Toma, and on the 14th a column was despatched thither, accompanied by the P.M.O. and a medical detachment. Marching with full kit (sixty pounds), but resting during the heat of the day, the troops covered the twenty miles to Toma and back in the day without casualty. The surrender of the acting Governor and his armed forces was secured soon after without further fighting. At a formal conference at Herbertshöhe on the 17th Dr Haber accepted the military occupation of New Britain by the Australian force, but contended that, to be effective, occupation of outlying stations must be made actual.

German Governor and force surrender

It had been intended that the expedition should include



Territory of German New Guinea: the Old Protectorate

at least all the places mentioned in the Admiralty cable; Colonel Holmes and his P.M.O. had indeed worked out a scheme for the distribution of the force. But developments in the strategic situation called the Australian fleet elsewhere. Though the Japanese and the British China Squadron were moving south the German fleet was still at large, and for the time being the activities of the expeditionary force were confined to the German possessions in the immediate vicinity

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of Rabaul. On September 22nd Colonel Holmes with four companies of infantry and accompanied by the P.M.O. and a medical detachment went on the *Berrima* to Madang, the German headquarters on Kaiser Wilhelm's Land. This settlement was occupied without opposition and was garrisoned by a company of infantry, to which was attached a medical detail of an officer and six other ranks.[19]

Madang occupied

On October 3rd Admiral Patey in the *Australia* with the *Sydney* and *Melbourne* following, departed for various destinations,[20] leaving behind, for the protection of the expedition, the French cruiser *Montcalm*.

The Australian Naval and Military Expeditionary Force settled down to the tasks arising out of the military occupation of a tropical island territory of great extent and presenting an almost endless variety of problems. For six weeks the medical detachment had met rapidly changing conditions, including some fighting, with notable success, and had now, without increase in personnel or resources, to meet new conditions and to be prepared to face problems of unknown nature and magnitude. It had, first, to adapt the resources of a small tropical settlement to the requirements of a military force of 1,500 men. After September 11th the expeditionary force had been concerned increasingly with matters of civil government, while retaining military organisation and status. Thus the medical services, extemporised for an expedition, faced from the outset all the responsibilities of the public health services of an established community, with the addition of health problems of military camp or barrack life. Under such conditions defects in organisation, equipment, or knowledge abruptly reveal themselves; and, just as the achievements of the medical services under these conditions indicated the course of action for the subsequent civil administration, so was that civil administration to throw into relief the defects of the military conditions in such a way as to be of permanent value for consultation in such enterprises in the future.

[19] On Sept. 19 Capt. Pockley's place was filled by the transfer from H.M.S. *Encounter* of a medical practitioner who had enlisted for intelligence duty with the Australian Navy and who was now given the rank of Captain, A.A.M.C.

[20] For an account of the peculiarly interesting events in the Pacific in relation to the movements of the German Fleet in the Pacific, see *Official History of Australia in the War, Vol. IX.*

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CHAPTER II

THE MILITARY OCCUPATION OF GERMAN NEW GUINEA

THE terms of surrender granted to the Governor of German New Guinea involved the effective military occupation of the outlying parts of the colony, and the maintenance of the economic and industrial conditions that existed in respect of the civilian population and indentured natives. The Government was also morally responsible for the health of the general native population. Thus the medical service had important responsibilities in addition to its primary duty of maintaining the health of the force in a tropical station during the period of occupation. The detachment was dispersed in widely scattered outposts, and in each was faced with difficult problems of administration and service. A serious outbreak of malaria was experienced by the first contingent before its relief early in 1915 by a specially recruited "Tropical Force."

* * *

The two most pressing duties which faced the Principal Medical Officer were the provision of hospital accommodation for the garrison forces, and the care of their health under conditions of continued residence in an isolated tropical country with few of the resources of civilisation. Hospital accommodation presented no great difficulty, since in each of the places now occupied satisfactory hospitals had been established for both Europeans and indentured natives. The fine European hospital at Rabaul was made the base hospital for the force. Small European hospitals were found also at Herbertshöhe and Madang, each of which became a military hospital, arrangements being made also for the accommodation of European civilians. The services of three German doctors, residents of the occupied localities, were engaged for attendance upon the natives.

German hospital and doctors

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The housing problem was satisfactorily solved by taking over two large stores belonging to the important trading companies which had played a dominant part in the development of German New Guinea. Good kitchen and messing accommodation was provided on the ground floor, and the troops were comfortably housed in the upper story. Sanitation was organised on garrison lines, a pan system of latrines on an eight per cent basis being installed cheaply and efficiently by Chinese labour and attended to by natives. To increase the water-supply—which was chiefly from house tanks and shallow wells, supplemented at Rabaul by reticulation from a small reservoir in the hills—a condensing plant was set up, which provided twenty tons of water daily. In these satisfactory quarters the garrison force at Rabaul was housed during the next five years. Provision on similar lines was made at Herbertshöhe for the Naval Reserve.

Troops' quarters

In Garrison Standing Orders of September 17th there was laid down a system of sanitary discipline directed chiefly against gastro-intestinal infection and malaria. To guard against the former, besides various general provisions, the boiling of all drinking water was enjoined, and to promote compliance with this order liberal issues of tea and coffee were made. Though the season of malaria was not normally due till November, from the beginning of the occupation quinine was issued as a prophylactic and mosquito nets were provided for all personnel. Suitable tropical clothing was obtained after some delay, and hours of work were regulated. At the beginning of October the situation in regard to health was in every respect satisfactory.

Disease prevention

On the 4th of that month the *Berrima* returned to Australia, and with her went the Principal Medical Officer, who had obtained from the Administrator permission to return in order that he might enlist in the Australian Imperial Force, of which the departure for Europe had been postponed through events connected with the movements of the German squadron. In commending to the Defence Department the services of Lieutenant-Colonel Howse the Administrator referred to the

Change of control

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118. THE MILITARY HOSPITAL AT NAMANULA, RABAUL

Lent by Sister C. E. Lethbridge, A.A.N.S.
Aust. War Memorial Collection No. A93.

119. MATUPI ISLAND QUARANTINE CAMP, 1915, FOR THE RECEPTION OF "MEASLES" FROM THE *Te Anau*

Aust. War Memorial Collection No. H13995.

To face p. 794.

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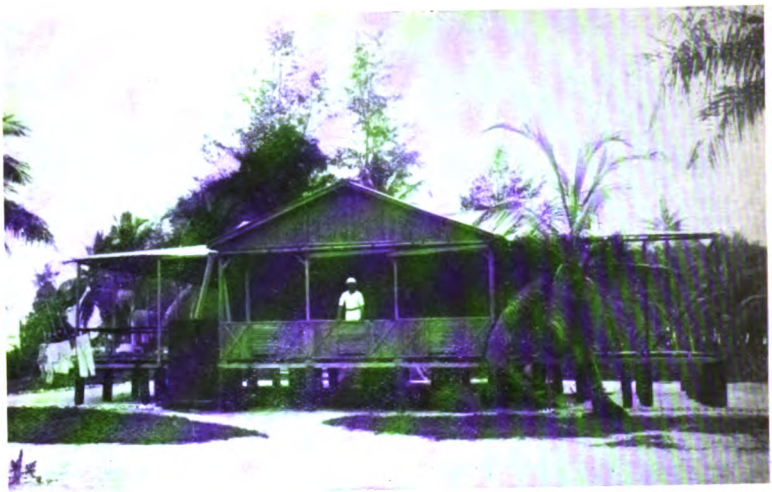

120. A WHITE MEDICAL ASSISTANT IN A HOUSE BUILT BY HIMSELF OF NATIVE MATERIAL

Aust. War Memorial Collection No. A2833.

121. MEDICAL EXAMINATION OF NATIVES IN A RECENTLY OPENED AREA

Aust. War Memorial Collection No. A2834.

To face p. 795.

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fact that up to the time of writing (15th October, 1914) "nearly 2,000 men had been transported by sea and disposed on shore in a tropical country, and up to the present not one single case of serious illness had occurred." Lieutenant-Colonel Howse was succeeded as Principal Medical Officer by Captain F. A. Maguire.

Conditions of the new regime

In dealing with the medical aspects of the next phase of the occupation, it is necessary to give full weight to two factors: first, the provision in the terms of surrender that civil conditions should for the most part continue unchanged, and, second, the medical system that had been evolved by Germany to meet the requirements of the industrial system built up to develop her Pacific possessions.

In view of these it was proposed that the civil population should be left alone in respect of their health administration, except when the welfare of the troops was menaced. But early in the occupation it became evident that this policy of detachment was not possible, and there was issued an ordinance[1] which, in addition to laying down general principles of sanitation for the troops, placed definite obligations on civil individuals in respect of the prevention of diseases known to be prevalent, and in connection therewith gave to the Principal Medical Officer certain rights of interference, including the levying of a penalty. This ordinance dealt with such fundamental matters as mosquito prevention, sanitary accommodation, disposal of nightsoil and refuse, and the protection of water and foodstuffs.

Disposal of medical personnel

At the beginning of October medical personnel were disposed as follows: at Rabaul (headquarters of the force), the Principal Medical Officer with fourteen other ranks, assisted by two German doctors who attended civilian Europeans and all native patients;[2] at Herbertshöhe, a medical officer with three other ranks had charge of the small hospital

[1] No. 3, dated 23 Dec., 1914. The white population of the Bismarck Archipelago was 821, of Rabaul 266.

[2] Two German nursing sisters were retained in the Namanula hospital, where they are reported to have done excellent work. Early in 1915 Miss M. Gibbon, A.A.N.S., arrived with three staff nurses and took over the hospital as matron. Thereafter this staff was maintained at strength from Australia.

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and the garrison, while a German doctor performed similar duties to those of his colleagues at Rabaul;[3] at Madang, a commissioned and two non-commissioned officers and six privates, A.A.M.C. After the occupation of other islands belonging to the colony of German New Guinea,[4] most of the above-mentioned medical staff were withdrawn to serve in these occupied possessions, and the medical staff in New Britain became unduly weakened.

The "Tropical Force"

In the meantime a "Tropical Force"[5] had been enlisted and organised in Australia, and on December 17th arrived at Rabaul to relieve the 1st Battalion. Before the arrival of this force, malaria had attacked the first contingent with some severity. The summer[6] of 1914 was unusually dry, the rainy season being deferred till late in December; until that time the health of the troops was excellent. One mild case of enteric occurred, and an epidemic of dengue fever in November affected sixty per cent of the troops at Rabaul and Herbertshöhe. A slight outbreak of diarrhœa (fifteen cases) occurred at Rabaul.

Onset of malaria

It was, however, fully realised by the P.M.O. that this situation could not last, and that with the break of the drought malaria was inevitable. Efforts were made to check the breeding of mosquitoes; quinine was administered, and every man was provided with mosquito netting. Yet, shortly after the onset of the wet season cases of malaria occurred, and the disease soon attained

[3] The services of these German doctors were availed of till the first force was relieved.

[4] *See p. 807.* These included New Ireland, New Hanover, the German Solomons, the Admiralties, the Western Islands, and Nauru. Circumstances partly strategic, partly political, led to an arrangement whereby the German possessions north of the equator—the Marianne, Marshall, and Caroline groups—were occupied by Japan. After the war they were mandated to that power.

[5] Known also as the "3rd Battalion, A.N. & M.E.F." The terms of enlistment of this force was for the duration of the war; that of the 1st Battalion had been for six months only. The "2nd Battalion" was that which sailed from Queensland in the *Kanowna* (*see p. 787*). The force comprised 30 officers and 219 others.

[6] Generally speaking the annual climate of New Guinea is divided between the "south-east trade," extending over the months of June to Oct. inclusive, and the "north-west monsoon" from Nov. to May, the latter being the rainy season. The changes of season are always marked by a period during which the winds are light and variable, interspersed with frequent storms and occasional gales almost of hurricane intensity. The average annual rainfall varies from 80 inches (Rabaul) to 150 (Madang) and 240 (Morobe). By reason of its great variety of physical features almost all climates are found, but the main part of the settlement is on the narrow plains at sea-level most suited to the growth of coconuts. In these areas the temperature fluctuates between a maximum of 92 degrees and a minimum of 68 with a humidity of 70, much more marked in the wet season.

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a serious prevalence. The type of disease was chiefly sub-tertian. Two patients died with meningeal symptoms. The heavy incidence was undoubtedly in some measure due to carelessness engendered in the troops by their long immunity; it was also candidly acknowledged by the medical staff that lack of practical experience in tropical hygiene was a heavy handicap.

All stations were affected in a greater or less degree. At Madang the epidemic began early and was especially severe. The admissions for disease at this station for the last quarter of 1914 are shown in the following table:—

Infectious diseases.		Non-infectious diseases.	
Malaria	87	Colic	8
Blackwater fever[7] ..	2	Appendicitis	1
Dengue	46	Hæmorrhoids ..	2
Tonsillitis	2	Constipation	6
Furunculosis	1	Inflamed scrotum ..	1
Septic legs	10	Synovitis	1
Abscess	2	Lumbago	1
Epididymitis	1	Hernia	1

New commander and reinforcements

The reduced medical staff in New Guinea were in difficulties until the arrival of the Tropical Force, with which came Major C. L. Strangman as specialist in tropical diseases. A general exchange was then effected. Colonel S. A. Pethebridge became Administrator. Major Maguire returned to Australia, Major Strangman becoming P.M.O. with a staff of seven medical officers. All the administrative staff except a few special officers, together with the personnel of the 1st Battalion and the Naval Reserve, returned to Australia. The commanding officer and P.M.O. left Rabaul on January 7th, most of the remainder of the force on February 10th.

During the period of its service abroad the 1st Battalion and the Naval Reserve of the A.N. & M.E.F. sustained, apart from the casualties incurred during the landing operations,[8] four deaths, two from injury and two from malaria. Two more deaths from malaria occurred in Australia among invalids returned by the *Eastern* in February.

[7] *See p. 800.* [8] *See p. 790.*

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CHAPTER III

THE TROPICAL FORCE

By Captain R. W. Cilento.

It was at the point now reached in the history of the Australian military occupation of German New Guinea that the true nature of the occasion began to be apparent. In the first place the experience of the next few years was to impress on all concerned the fact that, although Australia was close to tropical countries, and had, in fact, tropical dependencies, the training of medical staff for the responsibilities of tropical hygiene was still very deficient[1] and that the community could not risk being caught again in so serious a state of unpreparedness as at the outset of the War. In the second place it was, even then, becoming evident that this was not a mere occupation of enemy territory—a strategic move—but was, in fact, the assumption of a responsibility and the acceptance of a trust.

* * *

Probably no single fact more aptly illustrates the conditions characteristic of this phase of the occupation than the appointment of a civilian administrative officer as the commander of the "Tropical Force." Colonel Pethebridge at the outset of the War held the position of Secretary for Defence, and was given military rank for the purpose of this command. He had a long record of administrative experience and was a man of wide vision, and the history of his control exhibits the effect of both these qualities. His new "P.M.O.," moreover, was equipped by special experience and study for dealing with tropical disease and had a forceful personality apt to the occasion. The influence of this conjunction was soon felt.

[1] *See p. 784.*

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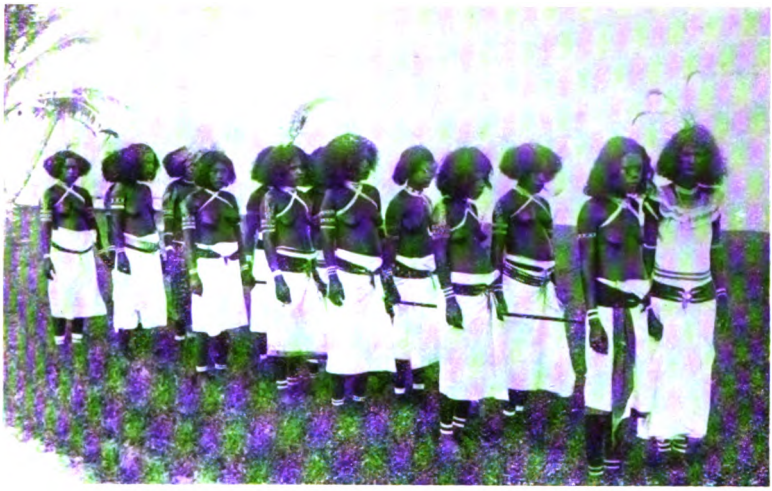
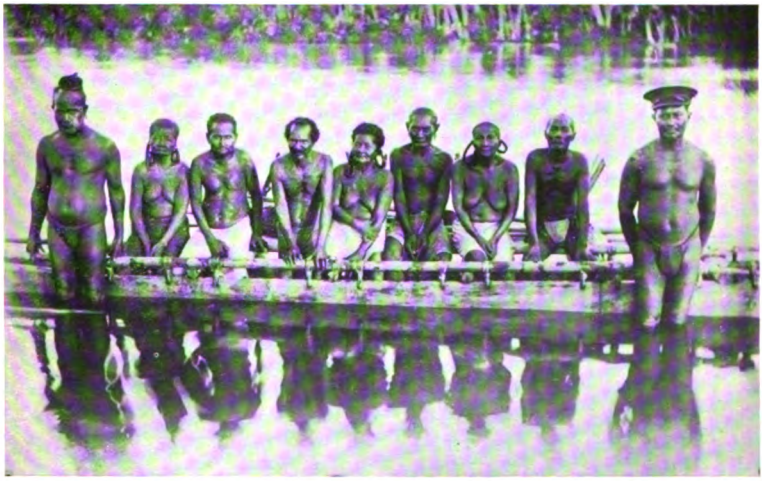


122. MICRONESIAN WOMEN

An accidental colony of Micronesians occurs in the islands of the most north-westerly corner of the Mandated Territory—Aua and Matti Islands. Note the long hair.

Aust. War Memorial Collection No. A2840.



123. GROUP OF OLD MEN AND WOMEN COMPRISING THE WHOLE REMAINING POPULATION OF THE ANCHORITE ISLANDS

Aust. War Memorial Collection No. A2842.

To face p. 798.

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124. Growing Swamp Taro

The swamp water necessary for the growth of the taro produces millions of disease-bearing anopheline mosquitoes.

Aust. War Memorial Collection No. A2843.

125. A native village, showing effective European influence in lay-out

Aust. War Memorial Collection No. A2841.

To face p. 799.

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The distribution of the Tropical Force on the 1st of March, 1915, is shown in the following table:—

Station.	Medical.			Total Garrison.	Total.
	Officers.	Nurses.	O. Ranks.		
Rabaul	3	4	12	356	375
Herbertshöhe ..	1	—	2	65	68
Käwieng	1	—	1	15	17
Namatanai ..	—	—	—	13	13
Kieta	1	—	—	25	26
Nauru[2]	1	—	—	25	26
Manus	1	—	—	13	14
Madang	2	—	3	25	30
Eitape	—	—	—	11	11
Morobe	—	—	—	11	11
Angorum	—	—	—	6	6
	10	4	18	565	597

Extension of medical facilities and sanitation to civilians

From the outset of its period of administration in New Guinea, the Tropical Force had to provide a public health service for the civil community as well as for itself. The civil population comprised a relatively large white population, preponderatingly foreign, and approximately a quarter of a million natives barely emerging from savagery. The first ordinance issued by Colonel Pethebridge[3] extended the sanitary provisions laid down for the force, to include the civil population and township of Rabaul and such other settlements as should be specified by proclamation. The medical officers attached to the garrisons which had been established in all the German outstations as a military measure were now required to act as Government medical officers for the corresponding native districts.

The population under control contained five elements: (*a*) the military forces, (*b*) the white civilian population, (*c*) the Asiatic and other alien coloured population, (*d*) the indentured natives, and (*e*) the free natives of the Territory.

[2] Nauru, though staffed from the New Guinea force, is 960 miles distant from Rabaul, just below the equator. It now forms a separate mandate under the joint responsibility of Great Britain, Australia, and New Zealand.

[3] No. 4, dated 15 Feb., 1915.

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The intricate problems arising from the requirements of each of these engaged all the attention of the medical staff during the term of the Tropical Force in New Guinea. In view of the uncertainty as to the duration of the occupation and of the handicap involved in its terms, the amount that was accomplished is much to the credit of the medical service.

Its primary duty during the period of occupation was the health of the troops. The diseases principally encountered, with the main local features exhibited, are discussed in the following paragraphs.

The Military Force—malaria

The activities of the new Principal Medical Officer and his staff were first directed towards the control of the chief of these—malaria—from which in some form or other more than ninety per cent of the soldiers of the first force had suffered. The problem of its prevention in the "tropical force" was attacked with vigour and a satisfactory measure of success. The prophylactic use of quinine as a matter of discipline, and other measures of precaution,[4] had remarkable results, the incidence of the disease among the troops falling to so low a point that fever rarely occurred among men stationed at the various garrison posts, except when they left the area under sanitary control to go on patrol in the bush. In the year 1917, for example, the percentage of fresh infections among all troops passing through headquarters at Rabaul was only 8.4, in spite of the fact that among these men there were many who were engaged on patrol work or the care of roads and bridges —occupations which carried them beyond the reach of all measures of protection except personal prophylaxis. It is a significant fact that no case of blackwater fever occurred in the force of occupation after 1915, whereas among civilians this extreme form of the disease was occasionally seen.[5] While, doubtless, general living conditions contributed to the happier experience of the troops as against that of the civilian population, it must be chiefly ascribed to the consistent enforcement on the former of prophylaxis by quinine,

[4] The oiling of tanks, protection of house and person against mosquitoes, and other routine measures. In Madang and Kāwieng, considerable breeding areas were dried up by earth embankments and superficial drainage. All these measures were to a great extent temporary, and were confined chiefly to the area occupied by the troops.

[5] The restriction of alcohol among the troops may have been of importance in this regard.

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which, as a rule, was avoided by civilians until they were actually attacked by malaria, arrest of the disease being then sought by heavy and irregular doses.[6]

Dysentery

Bacillary dysentery had first become widely disseminated throughout German New Guinea immediately after the actual institution of settled government in 1885, and was due to the enormous increase of economic interchange and traffic between the various native localities of the colony brought about thereby.[7] From these early beginnings the disease recurred from time to time in epidemic waves, and finally became established as one of the most important endemic disorders of New Guinea. During 1915-16

[6] *Cf. pp. 707, 775.* The important question of the efficacy of quinine as prophylactic against malarial infection, and of the most effective method of its use for this purpose, was a matter of much debate during the war, and cannot even yet be said to be settled. Experience in the Territory of German New Guinea justifies, it is thought, the following statement on the subject:—

> In the first place it was found that the application of this method of malarial prophylaxis—as of all others—must be adapted to the local conditions, which must be specially studied and the most promising or feasible lines of attack or defence adopted. In certain circumstances—as in patrol work—in German New Guinea prophylaxis by quinine and personal protection against bites were the only countervailing measures possible, and, if properly applied, were by no means ineffective, even under conditions of intense malarial infestation. Throughout the period of occupation, and afterwards, the administration of quinine was looked on by the medical authorities as a procedure of definite value, provided the following principles were observed:—
>
> (1) The prescribed quantity of the drug must be actually absorbed; and in this connection only the administration of a solution of a known concentration of a quinine salt is entirely free from potential errors.
>
> (2) The time of administration is important. The drug must be in circulation at the time of infection or of maturation of the first brood of merozoites, and, being quickly excreted, to ensure this it must be administered at the right moment—preferably about the time of the expected injection of the sporozoites into the blood. In the Territory this was generally in the evening or at night, and the drug was advantageously given with the evening meal; whereby also toxic effects—tinnitus, etc.—were minimised.
>
> (3) As in other transmissible diseases, the degree of infection (number of organisms obtaining ingress and frequency of reinfection) is of great importance. In the case of malaria this depends on the extent to which infection with the plasmodium exists in the mosquito population, and the number of bites sustained by the person attacked. The dosage and frequency of administration of the protective drug must therefore be adapted to the circumstances. Under conditions of mass infection, and of mosquito activity by day and night, it was found that quinine "prophylaxis" became actually continuous treatment for constant and in some degree successful reinfections, rather than protection against the possibility of infection.
>
> Yet even under these circumstances, it is suggested, the fact that thereby men may be kept free from clinical symptoms and remain on duty as "effectives" is a matter which in war may sometimes be of the utmost importance.

[7] In 1886-7, for example, it is recorded that an epidemic of dysentery raged for some 18 months in the New Britain and New Ireland districts, decimating the population. In some localities whole villages were wiped out, while the more fortunate tribes, which suffered to a less extent, increased the casualties by initiating bitter and implacable wars against their neighbours in the belief that this terrible disease was occasioned by witchcraft on the part of these, their hereditary enemies.

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the disease was prevalent, and stringent regulations were needed to safeguard the troops. The precautions taken were very effective.

As the war progressed, however, circumstances in other theatres provided avenues of infection with another type of the disease. Soldiers returned to Australia from Gallipoli and Palestine as no longer fit for service were in some instances drafted to the force of occupation to replace "A" class men required on the active fronts. With these newcomers amœbic dysentery made its appearance.[8] Previously this disease had very rarely been seen in New Guinea, and then was almost always traceable to a newcomer. In 1917, twenty cases occurred among the troops, and for several years small outbreaks continued to recur at irregular intervals.[9]

[8] In the Tropical Force great importance was placed on the discovery of amœbæ in water tanks, and drastic action was taken in the view—certainly erroneous—that they were pathogenic. Opportunity is taken here to correct a statement made in *Vol. X, p. 213,* of the *Official History of Australia in the War* which perpetuates this mistake. *See also pp. 458-62.* It may be observed that, while measures for the purification of water must be regarded as the first line of defence against epidemic outbreaks of all forms of dysentery, the most common mode of occasional transmission from case or carrier is, there is little doubt, more immediate. Direct proof exists that the house-fly may be an important intermediary in both forms, and there are good grounds for belief that under special circumstances it may even be the chief factor in serious outbreaks.

[9] At the present time sporadic evidences of the disease are occasionally seen. Conflicting statements as to the nature of the dysentery endemic in New Guinea led to a careful review of all literature and a rigid examination of available native material to demonstrate the relative frequency of bacillary and amœbic dysentery. This inquiry was continued until 1927, and elicited important features which may be interpolated for convenience at this juncture. The fact that the bacillary was the sole endemic form of dysentery was amply established; the extremely rare cases of amœbic dysentery were all traceable to accidental invasion. As in other countries, the pathogenic amœba exists in the fæces of a small proportion of individuals who appear to be in good health, but, up to the present, no case of amœbic dysentery in a native has been discovered. The experiments carried out by qualified and trained observers in a fully equipped laboratory are outlined in the annual *Reports to the Council of the League of Nations on the Administration of the Territory of New Guinea, 1925-26-27.* Referring to causes of deaths among natives as established by post-mortem examination and laboratory culture, the report for 1925-26 states—

> "Bacillary Dysentery.—This was the primary cause of death in 25 per cent of cases. Although the disease has not assumed epidemic proportions, the number of fatal cases has been relatively high. . . . Amœbic dysentery has not been seen in a native throughout the autopsy series (112 bodies), nor have any cases been diagnosed as such."

Again in the report for the following year:—

> "Dysentery.—In the native cases this was invariably of bacillary origin and accounted for about 17.7 per cent of the total deaths. Cultures were made in 17 cases, and, in all of these, bacilli giving reactions of *B. dysenteriæ* were isolated." (9 were Flexner, 2 Shiga strains.)

Evidence of a confirmatory nature comes from the neighbouring Territory of Papua, where the Chief Medical Officer, Dr. W. M. Strong, reported in 1926—

> "Dysentery was once an important problem in Papua. We still have some few cases, and at times what can be fairly called small epidemics. . . . Clinically, epidemics have always been bacillary, and the amœbic (form) has never been satisfactorily demonstrated." (*Report of the International Pacific Health Conference, Melbourne, Dec., 1926, p. 25.*)

Amœbic dysentery appears always to have been brought into Melanesia by Asiatic or European visitors, and exists throughout the island groups roughly in proportion to the degree to which Asiatics are distributed among the population. In New

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As an index to the health of the garrison troops during the period of occupation, figures given in the report for 1917 of the Principal Medical Officer on the work done at the Namanula hospital in that year may be taken as illustrating the general experience in all the stations.[10]

Admissions to hospital

The total admissions numbered 287, of whom 27 were from the Naval Reserve and 229 from the military force, while 31 were civilians. The strength of the permanent garrison at New Britain was 65: but 724 troops in all passed through Rabaul during the year.

Twenty-nine per cent of all admissions were for malaria —representing 8.4 per cent of new infections. Seven per cent were diagnosed as suffering from "amœbiasis," bacillary dysentery "occurred rarely." Twenty men were admitted for "coral cuts"[11] or ulcers serious enough to necessitate hospital treatment. These conditions were responsible for much temporary incapacitation; but the true tropical ulcer[12] which is common in the native was not seen among the troops.

Another common form of infection—acquired, it was supposed, through bathing—was an infection of the ear, for which eleven men were admitted to hospital, the ear discharge being found to contain *B. pyocyaneus* in almost pure culture. The cases responded immediately to a vaccine prepared from this organism.

The remainder comprised, beside the disabilities usual in a garrison force, an unduly large proportion of dystrophies

Caledonia, where Asiatic labour is a constant feature of the sociological picture, amœbic dysentery is so frequent as to dominate the disease situation. In Fiji, with its Indian population approximately equal to the native population, the same feature is to be observed. In the New Hebrides, amœbic dysentery is becoming established in relation to the continued introduction of Indo-Chinese labourers for French planters. A few cases are now occurring in the lower areas of the British Solomon Islands Protectorate near the Northern Hebrides. In the northern part of the British Solomons, the Territory of Papua, and the Mandated Territory of New Guinea, the disease may be said not to exist, the Asiatic population being extremely small and largely confined to towns in the British Solomons and in the Mandated Territory, and there being no Asiatics in the Territory of Papua.

[10] The statistics of disease for the period of occupation are very inexact and incomplete.

[11] Any skin abrasion readily becomes infected in the Territory of New Guinea. In particular cuts caused by fresh coral almost invariably result in an acute secondary infection which from its rapidity and malignity has been considered to be specific. They were separately classified.

[12] Tropical ulcer is a sloughing phagedæna common in most tropical countries, especially those with a hot, damp climate, and in New Guinea appears to occur principally where mangrove mud is common, and occasionally assumes epidemic proportions. Its occurrence is particularly related to seasons of diminished food supply, and it may be that this has some determining influence.

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and chronic disease, and of neuroses, chiefly among the troops returned from the European and Palestine fronts. Of the latter the P.M.O. reported that—

> They stand the climate badly; in every case it has been found that there is a recurrence of the sickness for which they were returned as invalids, and it is frequently necessary for us to return them to Australia almost immediately.

During the period 1914-19 (inclusive) twenty-seven deaths occurred among the military personnel of the garrisons. Their causes are set out in the following table:—

Disease.	1914.	1915.	1916.	1917.	1918.	1919.	Total.
Transmissible.							
Malaria ..	2	2	—	1	—	2	7
Blackwater fever ..	—	1	—	—	—	—	1
Liver abscess ..	—	1	—	—	—	—	1
Dysentery ..	—	1	—	—	—	—	1
Pneumonia ..	—	—	—	—	1	1	2
Tuberculosis ..	—	—	—	—	1	1	2
Skin infection ..	—	—	1	—	—	—	1
Septicæmia ..	—	—	—	—	2	—	2
Total ..	2	5	1	1	4	4	17
Non-transmissible.							
Accidental ..	1	2	1	—	—	—	4
Self-inflicted wounds	1	—	—	1	—	—	2
Bright's disease ..	—	1	—	—	1	—	2
Heart disease ..	—	—	—	—	1	—	1
Others ..	—	—	—	—	1	—	1
Total ..	2	3	1	1	3	—	10
1914-1919 ..	4	8	2	2	7	4	27

The average strength of the force during this period was 750.

European civilians and Asiatics

The rigid protective measures, the specialist equipment, and the hospital facilities, provided for the soldiers during the period of military occupation, afforded to the European civilian, and still more appreciably to the Asiatic population, medical privileges which had never previously been so readily available, and both Europeans and Asiatics took no small advantage of these unusual opportunities.[13]

[13] For example, the services of ten medical officers instead of five. Moreover, the services of the capable dental officers who from 1915 onwards were attached to the garrison at Rabaul, whence they made excursions, were fully available to European residents.

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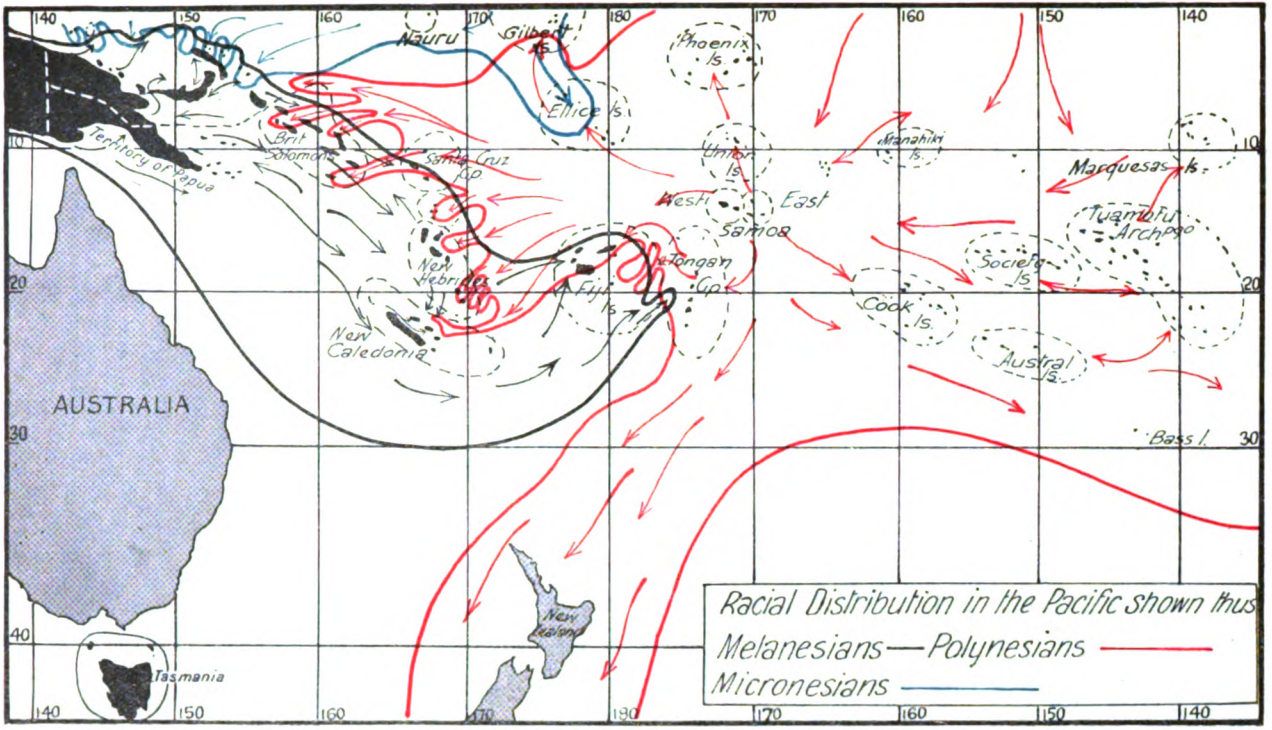

Map No. 23

RACIAL DISTRIBUTION IN THE PACIFIC (*Cilento*)

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Formidable as were the problems of hygiene in this tropical area in respect to the first three groups, it was the native races in New Guinea (as elsewhere) that provided those most difficult to deal with. To the public health official, indeed, the native of the Pacific presents a problem of quite peculiar complexity. He has to contend not only against actual disease—and these so wide-spread as to be almost universal (in parts of the Pacific malaria, yaws, and tropical ulceration are common enough to be regarded less as diseases than as circumstances of environment)—but against the whole force of native distrust, timidity, or open hostility: in particular against superstition in that primitive and fundamental form that connotes a real and active belief in "witchcraft." To the native no man dies or sickens naturally. The spear that pierces, the fall that kills, the ulcer that destroys a limb, the fever that takes a life, select their victims deliberately at the behest of his enemy—or of the "medicine man."

The problem of the native

The health of the natives was the subject of various enactments that dealt with a wide range of subjects, among which may be particularly noted the control of recruiting and the prevention of venereal disease. Medical work among the indentured natives assumed a dual aspect. Primarily it consisted in the prevention among them of disorders that might deleteriously affect the troops; a further, but secondary, purpose was the handling of those disorders that affected the value of the indentured labourer to his employer. During the period of military occupation, and (for reasons which will presently be seen) for some time afterwards, the medical staff on the headquarters of the administration[14] to a great extent restricted itself to this ample programme of work. It was indeed inevitable that the indefinite prolongation of the war, the uncertainty of its outcome, and—to many—the uncongenial nature of their retention on a non-combatant front, should have induced a certain lack of enthusiasm and of desire to look outside the ambit of specific duties, and, indeed, should have

[14] In June, 1917, Lieut.-Col. Strangman went to Australia on furlough, and, while returning to New Guinea, was captured on the transport *Matunga* by the German raider *Wolf* and until 3 March, 1918, was posted as missing. On that date it was notified that he was held interned in Denmark. He was replaced by Lieut.-Col. FitzHerbert.

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tended to reduce the general medical programme to the level of stereotyped routine. It was also inevitable that on all outstations in the occupied colony the activities of the medical officer should to a great extent have been confined to the actual work of his station—care of the military garrison to which he was attached for "duty, pay, rations, and discipline."[15]

After the Armistice

These features of the medical work became much accentuated after the Armistice when, the War being won, officers and men alike looked for repatriation and the resumption of civil life. But it was nearly a year later that, on the 18th October, 1919, a proclamation by the Administrator informed the force in occupation and the German residents that a mandate would be issued by the League of Nations to the Commonwealth of Australia for the administration and government of the colonies. In the same month the Tropical Force was for the most part relieved and replaced by a civilian staff—the initial step in the substitution of civil control for military occupation.

Under the terms of the Peace of Versailles this was not, however, to be a mere "take over" by one administrative authority from another, but the first stage in the change to a new order of government and economic system. The effective accomplishment of this was held to involve, as an initial step, the destruction of the old. By an *Expropriation Ordinance* issued on the 1st of September, 1920,[16] all property held by enemy nationals was declared forfeit, and an Expropriation Board was instituted, of which the function was to take over and evaluate ex-enemy property. These duties the Board put in hand at once, thus preceding by some nine months the inauguration of a purely civil administration of what was now to be called the "Territory of New Guinea."[17]

[15] Another factor which contributed to hamper progressive work was the very frequent change that occurred in the posting of medical personnel. Officers stationed only for a few months in a district could not be expected to visualise adequately the problems of the areas under their control, while their periods of service were too short to inspire in the natives that confidence which is so essential to medical work among them. To a native it is the man, and not the drug, that counts.

[16] Amended May, June, and July, 1921.

[17] The name "Territory of New Guinea" was an unfortunate choice. The main development of the territory has taken place not in New Guinea itself but in the Bismarck or New Britain Archipelago. Rabaul, the capital, is situated on the eastern end of the island of New Britain, some hundreds of miles from the mainland.

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Relation to Papua

At the outset of conjoint military and civil administration, in October, 1919, a commission[18] was appointed to report upon the administrative interpretation of the responsibilities involved in the impending grant of the mandate. The commission met in Rabaul. In the adjoining Territory of Papua a system of civil administration had been developed which had attracted world-wide interest and commendation, and there were several matters, among them public health, in which unity of problem suggested unity in outlook and co-ordination in policy, if not actual identity of control.

Owing, however, to differences in constitution—the Territory of Papua being an actual possession of the Commonwealth of Australia, while the Territory of New Guinea was merely to be administered by it under mandate—unification was impossible—political and administrative considerations prevented the consummation of this ideal; but such mechanical difficulties could not entirely obscure the desirability of co-ordinated effort. Though the final report of the commission did not establish unification in any of the related services in the two territories, the matter was seriously considered. Indeed, the possibility and advantage of mutual co-operation and co-ordination of effort in certain matters—in particular that of public health—between *all* administrative groups in the great Melanesian series, had already been visualised.

Under the mandate

The military occupation continued until, on 6th April, 1921, the mandate for the control of German New Guinea was received by the Commonwealth of Australia from the League of Nations; the occupation ended actually on the 9th May,

Moreover, there is already a "Territory of Papua" (formerly "British New Guinea"), and since "Papua" and "New Guinea" are synonyms, it is confusing to find that the "Territory of Papua" and the "Territory of New Guinea" are not identical, but are actually different localities with entirely separate administrations and status, the former being an actual possession of Australia governed from Port Moresby, the latter being held by Australia under mandate and governed from Rabaul.

The so-called "Territory of New Guinea" actually comprises the north-east part of New Guinea, the great islands of New Britain and New Ireland, the former German Solomons, and numerous smaller groups with hundreds of neighbouring islets. Ethnologically and geographically the country is the Territory of North Melanesia.

[18] The commission consisted of Sir Hubert Murray (Lieutenant-Governor of Papua), W. H. Lucas (a man of wide experience in Island commerce), and Atlee Hunt (at that time Secretary of the Home and Territories Department of the Commonwealth).

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1921, being replaced by administration under a civilian administrator[19] appointed by the Commonwealth. The new organisation included a Department of Public Health, of which Dr. Andrew Honman was appointed "Principal Medical Officer," and to him it fell to initiate the first stage of a general process of reorganisation. During the succeeding years, under the central direction of the Commonwealth Department of External Affairs,[20] and under the local direction of the Administrator, the administration of public health matters passed through gradually improving phases of development. For the period 1923 to 1927 the Director of the Australian Institute of Tropical Medicine in the Commonwealth Department of Health, Dr R. W. Cilento, who from November, 1918, to October, 1919, had served as a medical officer in the Tropical Force, was seconded for service as "Director of Public Health" in the Territory of New Guinea. Throughout the whole of this period the co-operation and the resources of the Australian Institute of Tropical Medicine at Townsville were available and were found most valuable.[21] Under these new conditions the medical problems of the Mandated Territory were dealt with scientifically and systematically. The medical service of the Territory was progressively improved, and the health prospects appreciably brightened for prospective white settlers. The welfare of the native races had been emphasised in very special manner by the terms of the mandate received from the League of Nations, and some difficult problems had to be faced in the discharge of the obligations so implied.[22]

[19] Brigadier-General E. A. Wisdom, C.B., C.M.G., D.S.O., V.D.

[20] Presided over by Mr. Atlee Hunt, C.M.G., and later by Mr. J. G. McLaren, C.M.G.

[21] In December, 1921, there had been established at Rabaul one of the series of branch health laboratories of the Commonwealth Department of Health. This laboratory provided technical advice and assistance for the Administration and the Expropriation Board.

[22] Among these the following may be cited as of prime importance or most urgent:—

Hookworm. A survey of hookworm incidence (carried out during the years 1918 and 1921 by the officers of the "International Health Board" of the Rockefeller Foundation) demonstrated the universal prevalence among the native races of this infestation, and the immediate need for mass treatment.

Yaws or *Frambœsia* was another disease that required to be dealt with by campaign methods, being widespread and of very serious national significance.

Malaria was—and still is—universal, and one of the most important factors in the infantile mortality.

Urgent problems presented themselves also in the demonstrated prevalence of *tuberculosis* and the obvious feebleness of the resistance of the native to other acute respiratory infections, and also in the endemic prevalence of *bacillary dysentery* and

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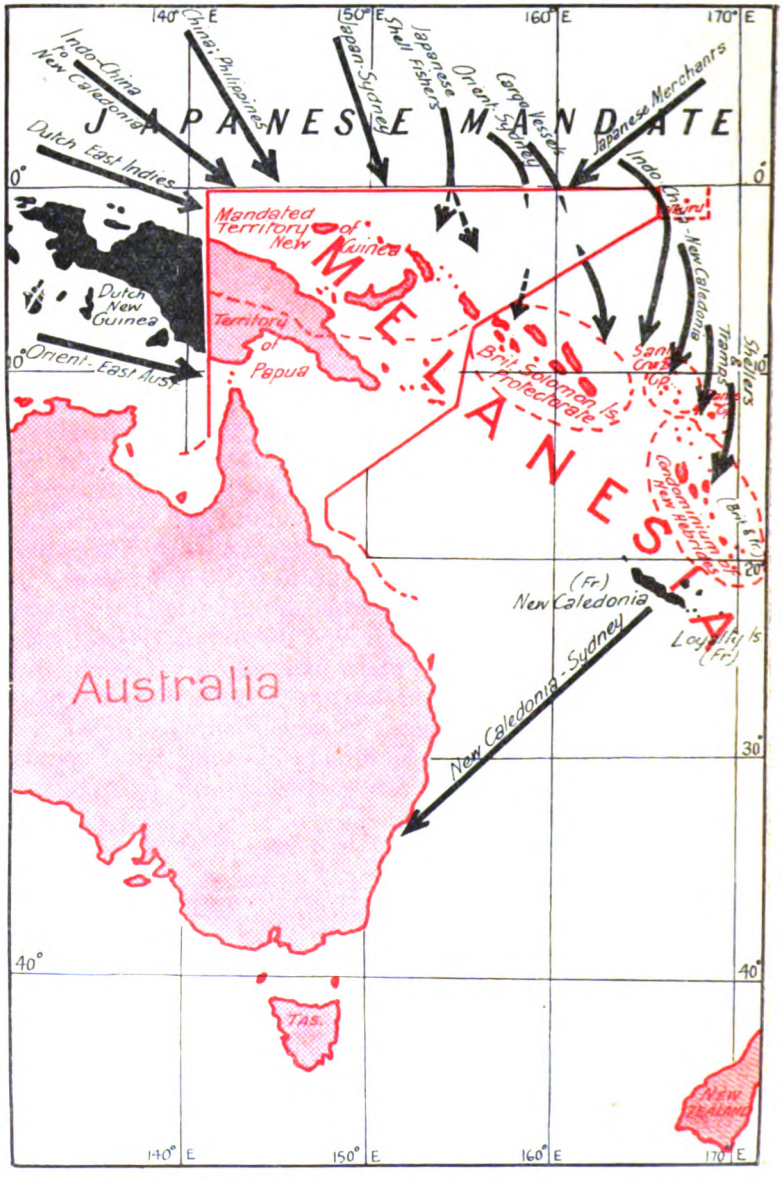
Map No. 24



LINES OF POSSIBLE DISEASE INVASION (*Cilento*)

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The Austral-Pacific Regional Zone

From 1924 onwards the wider aspects of the health problems of the Pacific came more and more into prominence; and in any health scheme that involved concerted action in the Western Pacific the Mandated Territory was, of necessity, closely concerned. Geographically, the "Territory of New Guinea" is the massive base of Melanesia, from which, almost exactly paralleling the neighbouring north-east coast of Australia, there spreads a giant span of islands east and south for nearly 3,000 miles. Split though it is into seven administrative areas,[23] all Melanesia is peopled by a single racial type with a single series of medical problems. If Dutch New Guinea and New Caledonia are excluded as being under foreign rule, and Fiji as being free from malaria, there remains a vast archipelago comprising the Mandated Territory of New Guinea, Papua, the British Solomons, and the New Hebrides, bound together by the ties of related problems, peoples, and governments, and constituting a bio-geographical area almost unique.[24] Of the whole 198,500 square miles Australia now administered 183,000, that is to say, more than 92 per cent. It was therefore both natural and fitting that Australia should take the initiative in a movement for concerted international action in connection with the health affairs of the Western Pacific. It does not fall within the scope of this work to record the successive stages in the development of this movement. But its *dénouement* may with propriety be noted here. Briefly, as the outcome of a series of rapprochements between the powers directly concerned, the whole of this vast area, together with the groups that constitute Polynesia, was united, as the "Austral-Pacific Regional Zone," in a comprehensive

its occasional occurrence in epidemic waves of some magnitude. *Specific food deficiencies* such as beri beri and scurvy (the latter common as "New Guinea sore mouth") were prevalent. The progressive diminution in the numbers of population in certain districts called for serious attention. The last named was the result of various factors, acting individually or in combination, notably the food problem, social degeneration, the introduction of exotic disease, and the conditions involved in what may be termed the industrialisation of the Pacific.

[23] These are Dutch New Guinea, Papua (formerly British New Guinea), Mandated Territory of New Guinea, British Solomon Islands Protectorate, the Condominium of the New Hebrides (French and British), French Colony of New Caledonia and Dependencies, and Fiji (British).

[24] *See maps, pp. 804 and 809.*

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scheme of voluntary co-operation by all territorial administrations in the Western Pacific. This movement had for its purpose the provision of more efficient local medical service in, and more complete community of action by, the medical administrations of the various territories concerned.

The story of the minor military adventure, undertaken without much thought of consequences but ending in the creation of the "Austral-Pacific Regional Zone," is a story of great significance. The need for capturing a wireless station was the switch-key which eventually brought into activity the dormant sense of responsibility of the Australian people, exhibiting to them a great opportunity for service, and moving them to offer freely their resources towards bearing the common burden. The Australian people, it is believed, has been able materially to help the others concerned. Truly the "great and urgent Imperial service" was vastly greater and more urgent than was realised by those who sent that summons.[25]

[25] *See p. 782.*

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APPENDICES

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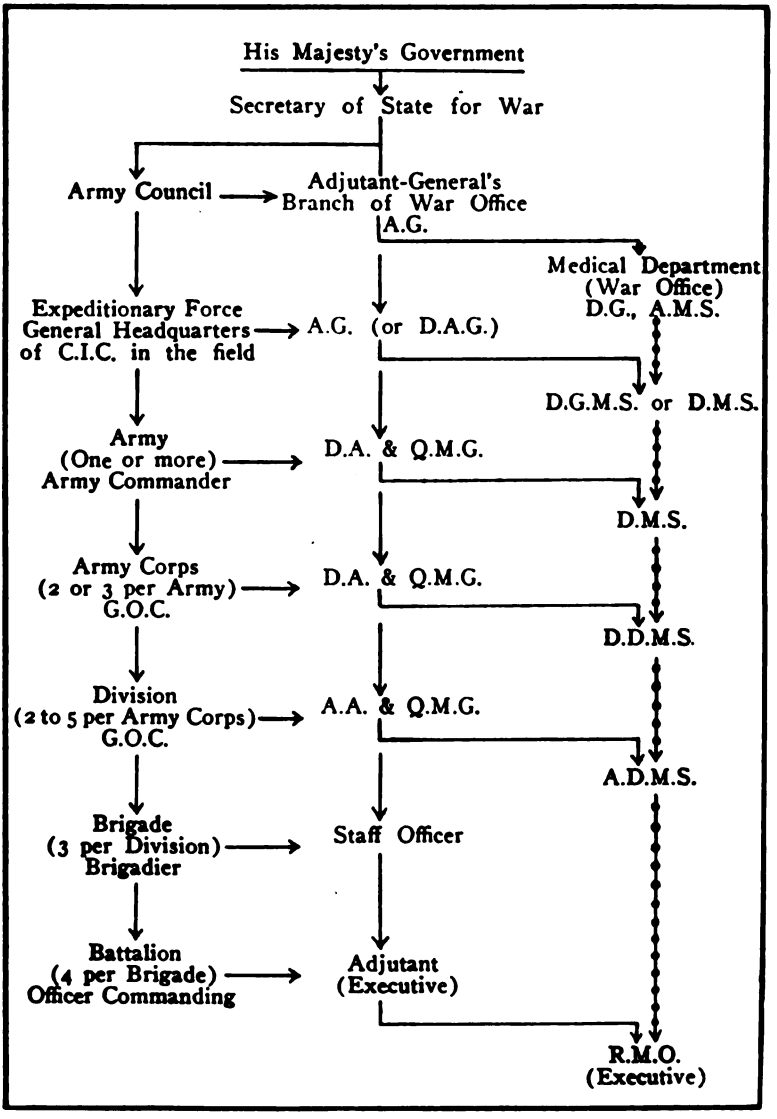
APPENDIX No. 1.

DIAGRAM ILLUSTRATING THE CHAIN OF CONTROL IN RESPECT TO THE MEDICAL DEPARTMENT OF THE ADJUTANT-GENERAL'S BRANCH OF THE BRITISH ARMY DURING THE GREAT WAR.



indicates chain of technical (or professional) control.

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APPENDIX No. 2.

ORGANISATION OF STAFF DUTIES IN THE FIELD.

As illustrated by arrangements in the Mediterranean Expeditionary Force, 1915.
(Adapted from *Field Service Regulations 1909* and *Field Service Pocket Book*.)

GENERAL HEADQUARTERS IN THE FIELD.

General Officer Commanding in Chief.

GENERAL STAFF BRANCH ("G")

Chief of General Staff (C.G.S.)

Duties include

Working out of all arrangements and drafting of orders regarding all military operations including marches, security, and battle. War organisation and efficiency. Intercommunication. Censorship. Intelligence. Preparation of reports, despatches, and diaries. Ciphering and deciphering.

ADJUTANT-GENERAL'S BRANCH ("A")

(Represented by a Deputy Adjutant-General or "D.A.G.")

Duties include

Supply and disposal of personnel. Discipline. Military and martial law. Pay, promotions, honours, and rewards. Sanitation. Provision of medical equipment. Casualties and invaliding. Burial of dead. Prisoners of war. Records (personnel).

QUARTERMASTER-GENERAL'S BRANCH ("Q").

(Represented by a Deputy Quartermaster-General or D.Q.M.G.)

Duties include

Maintenance

Provision of everything (other than personnel and medical equipment) necessary for the maintenance and upkeep of the army, also quartering of personnel and storage of material.

Movement

Arrangements for movements by land or sea in the theatre of war and the transport of all personnel, animals, and articles required to maintain the army. Co-ordination between Field Army and I.G.C.

For the efficient performance of staff duties all three branches must work in close co-operation. The General Staff are responsible that, with due regard to secrecy, information as to situation and probable requirements of troops is furnished to the A.G's and Q.M.G's branches in sufficient time to enable these requirements to be met. The power and responsibility of co-ordinating staff work at general headquarters is vested in the C. in C.; but he will delegate it as he may think fit to the C.G.S., who is his responsible adviser on all matters affecting military operations, through whom he exercises his functions of command.

Each administrative service and department comes directly under General Staff Branch for tactical dispositions; and for transportation—other than by establishment—under the Quartermaster-General's Branch.

Artillery and Engineers are represented on the staff of a commander by the attachment of a senior officer of each of these arms to the general staff branch at G.H.Q. and Army Headquarters. These officers act as the technical advisers of their commanders and the principal staff officers.

DISTRIBUTION OF DUTIES AMONG THE ADMINISTRATIVE SERVICES AND DEPARTMENTS.

DIRECTOR OF VETERINARY SERVICES (D.V.S.).
Health of animals.

DIRECTOR OF SUPPLIES AND OF TRANSPORT (D. of S. & T.).
Food, forage, fuel, etc.; transport.

DIRECTOR OF ORDNANCE (D.O.).
Ammunition, equipment, etc.

DIRECTOR OF WORKS (D. of W.).
Construction and maintenance of buildings and installations, and roads.

DIRECTOR OF REMOUNTS (D.R.).
Provision, training, and distribution of all animals.

DIRECTOR OF POSTAL SERVICES (D.P.S.).
Postal communication.

PAYMASTER IN CHIEF.
Pay and army accounts.

DIRECTOR OF MEDICAL SERVICES.
Care of sick and wounded. Provision and administration of hospitals and convalescent depôts. Provision of medical equipment. Recommendations for measures to preserve health and prevent disease in the army and civil population. Subject to naval arrangements, control of medical equipment and readiness of hospital ships for invalids.

DEPUTY JUDGE ADVOCATE-GENERAL.
Military, martial, and international law.

PRINCIPAL CHAPLAIN.
Spiritual.

PROVOST MARSHAL.
Military police and traffic control.

DIRECTOR OF ARMY SIGNALS.
Inter-communication.

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APPENDIX No. 3.

THE GENEVA CONVENTION OF THE 6TH OF JULY, 1906 (TRANSLATION).

CHAPTER I.—THE WOUNDED AND SICK.

Article 1. Officers and soldiers, and other persons officially attached to armies, shall be respected and taken care of when wounded or sick by the belligerent in whose power they may be, without distinction of nationality.

Nevertheless, a belligerent who is compelled to abandon sick or wounded to the enemy shall, as far as military exigencies permit, leave with them a portion of his medical personnel and material to contribute to the care of them.

Article 2. Except as regards the treatment to be provided for them in virtue of the preceding article, the wounded and sick of an army who fall into the hands of the enemy are prisoners of war, and the general provisions of international law concerning prisoners are applicable to them.

Belligerents are, however, free to arrange with one another such exceptions and mitigations with reference to sick and wounded prisoners as they may judge expedient; in particular, they will be at liberty to agree—

to restore to one another the wounded left on the field after a battle;

to repatriate any wounded and sick whom they do not wish to retain as prisoners, after rendering them fit for removal or after recovery;

to hand over to a neutral State, with the latter's consent, the enemy's wounded and sick to be interned by the neutral State until the end of hostilities.

Article 3. After each engagement the Commander in possession of the field shall take measures to search for the wounded, and to ensure protection against pillage and maltreatment both for the wounded and for the dead.

He shall arrange that a careful examination of the bodies is made before the dead are buried or cremated.

Article 4. As early as possible, each belligerent shall send to the authorities of the country or army to which they belong the military identification marks or tokens found on the dead, and a nominal roll of the wounded or sick who have been collected by him.

The belligerents shall keep each other mutually informed of any interments and changes, as well as of admissions into hospital and deaths among the wounded and sick in their hands. They shall collect all the articles of personal use, valuables, letters, etc., which are found on the field of battle or left by the wounded or sick who have died in the medical establishments or units, in order that such objects may be transmitted to the persons interested by the authorities of their own country.

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Article 5. The competent military authority may appeal to the charitable zeal of the inhabitants to collect and take care of, under his direction, the wounded or sick of armies, granting to those who respond to the appeal special protection and certain immunities.

CHAPTER II.—MEDICAL UNITS AND ESTABLISHMENTS.

Article 6. Mobile medical units (that is to say, those which are intended to accompany armies into the field) and the fixed establishments of the medical service, shall be respected and protected by the belligerents.

Article 7. The protection to which medical units and establishments are entitled ceases if they are made use of to commit acts harmful to the enemy.

Article 8. The following facts are not considered to be of a nature to deprive a medical unit or establishment of the protection guaranteed by Article 6:—

1. That the personnel of the unit or of the establishment is armed, and that it uses its arms for its own defence, or for that of the sick and wounded under its charge.

2. That in default of armed orderlies, the unit or establishment is guarded by a picquet, or by sentinels, furnished with an authority in due form.

3. That weapons and cartridges taken from the wounded and not yet handed over to the proper department, are found in the unit or establishment.

CHAPTER III.—PERSONNEL.

Article 9. The personnel engaged exclusively in the collection, transport, and treatment of the wounded and the sick, as well as in the administration of medical units and establishments, and the Chaplains attached to armies, shall be respected and protected under all circumstances. If they fall into the hands of the enemy they shall not be treated as prisoners of war.

These provisions apply to the guard of medical units and establishments under the circumstances indicated in Article 8 (2).

Article 10. The personnel of Voluntary Aid Societies, duly recognised and authorised by their Government, who may be employed in the medical units and establishments of armies, is placed on the same footing as the personnel referred to in the preceding article, provided always that the first-mentioned personnel shall be subject to military law and regulations.

Each State shall notify to the other, either in time of peace or at the commencement of or during the course of hostilities, but in every case before actually employing them, the names of the societies which it has authorised, under its responsibility, to render assistance to the regular medical service of its armies.

Article 11. A recognised society of a neutral country can only afford the assistance of its medical personnel and units to a belligerent with the previous consent of its own Government, and the authorisation of the belligerent concerned.

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A belligerent who accepts such assistance is bound to notify the fact to his adversary before making any use of it.

Article 12. The persons designated in Articles 9, 10, and 11, after they have fallen into the hands of the enemy, shall continue to carry on their duties under his direction.

When their assistance is no longer indispensable, they shall be sent back to their army, or to their country, at such time and by such route as may be compatible with military exigencies.

They shall then take with them such effects, instruments, arms, and horses as are their private property.

Article 13. The enemy shall secure to the persons mentioned in Article 9, while in his hands, the same allowances and the same pay as are granted to the persons holding the same rank in his own army.

CHAPTER IV.—MATERIAL.

Article 14. If mobile medical units fall into the hands of the enemy, they shall retain their material, including their teams, irrespectively of the means of transport and the drivers employed.

Nevertheless, the competent military authority shall be free to use the material for the treatment of the wounded and sick. It shall be restored under the conditions laid down for the medical personnel, and so far as possible at the same time.

Article 15. The buildings and material of fixed establishments remain subject to the laws of war, but may not be diverted from their purpose so long as they are necessary for the wounded and the sick.

Nevertheless, the Commanders of troops in the field may dispose of them in case of urgent military necessity, provided they make previous arrangements for the welfare of the wounded and sick who are found there.

Article 16. The material of Voluntary Aid Societies which are admitted to the privileges of the Convention under the conditions laid down therein is considered private property, and as such to be respected under all circumstances, saving only the right of requisition recognised for belligerents in accordance with the laws and customs of war.

CHAPTER V.—CONVOYS OF EVACUATION.

Article 17. Convoys of evacuation shall be treated like mobile medical units subject to the following special provisions:—

1. A belligerent intercepting a convoy may break it up if military exigencies demand, provided he takes charge of the sick and wounded who are in it.

2. In this case, the obligation to send back the medical personnel, provided for in Article 12, shall be extended to the whole of the military personnel detailed for the transport or the protection of the convoy, and furnished with an authority in due form to that effect.

The obligation to restore the medical material, provided for in Article 14, shall apply to railway trains, and boats used in internal

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navigation, which are specially arranged for evacuations, as well as to the material belonging to the medical service for fitting up ordinary vehicles, trains, and boats.

Military vehicles other than those of the medical service may be captured with their teams.

The civilian personnel, and the various means of transport obtained by requisition, including railway material and boats used for convoys, shall be subject to the general rules of international law.

CHAPTER VI.—THE DISTINCTIVE EMBLEM.

Article 18. As a compliment to Switzerland, the heraldic emblem of the red cross on a white ground, formed by reversing the Federal colours, is retained as the emblem and distinctive sign of the medical service of armies.

Article 19. With the permission of the competent military authority, this emblem shall be shown on the flags and armlets (brassards) as well as on all the material belonging to the Medical Service.

Article 20. The personnel protected in pursuance of Articles 9 (paragraph 1), 10, and 11 shall wear, fixed to the left arm, an armlet (brassard) with a red cross on a white ground, delivered and stamped by the competent military authority, and accompanied by a certificate of identity in the case of persons who are attached to the medical service of armies, but who have not a military uniform.

Article 21. The distinctive flag of the Convention shall only be hoisted over those medical units and establishments which are entitled to be respected under the Convention, and with the consent of the military authorities. It must be accompanied by the national flag of the belligerent to whom the unit or establishment belongs.

Nevertheless, medical units which have fallen into the hands of the enemy, so long as they are in that situation, shall not fly any other flag than that of the Red Cross.

Article 22. The medical units belonging to neutral countries which may be authorised to afford their services under the conditions laid down in Article 11 shall fly, along with the flag of the Convention, the national flag of the belligerent to whose army they are attached.

The provisions of the second paragraph of the preceding article are applicable to them.

Article 23. The emblem of the red cross on a white ground, and the words "Red Cross" or "Geneva Cross" shall not be used either in time of peace or in time of war, except to protect or to indicate the medical units and establishments and the personnel and material protected by the Convention.

CHAPTER VII.—APPLICATION AND CARRYING OUT OF THE CONVENTION.

Article 24. The provisions of the present Convention are only binding upon the Contracting Powers in the case of war between two or more of them. These provisions shall cease to be binding from the moment when one of the belligerent Powers is not a party to the Convention.

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Article 25. The Commanders-in-Chief of belligerent armies shall arrange the details for carrying out the preceding articles, as well as for cases not provided for, in accordance with the instructions of their respective Governments, and in conformity with the general principles of the present Convention.

Article 26. The Signatory Governments will take the necessary measures to instruct their troops, especially the personnel protected, in the provisions of the present Convention, and to bring them to the notice of the civil population.

CHAPTER VIII.—PREVENTION OF ABUSES AND INFRACTIONS.

Article 27. The Signatory Governments, in countries the legislation of which is not at present adequate for the purpose, undertake to adopt or to propose to their legislative bodies such measures as may be necessary to prevent at all times the employment of the emblem or the name of Red Cross or Geneva Cross by private individuals or by societies other than those which are entitled to do so under the present Convention, and in particular for commercial purposes as a trade-mark or trading mark.

The prohibition of the employment of the emblem or the names in question shall come into operation from the date fixed by each legislature, and at the latest five years after the present Convention comes into force. From that date it shall no longer be lawful to adopt a trade-mark or trading mark contrary to this prohibition.

Article 28. The Signatory Governments also undertake to adopt, or to propose to their legislative bodies, should their military law be insufficient for the purpose, the measures necessary for the repression in time of war of individual acts of pillage and maltreatment of the wounded and sick of armies, as well as for the punishment, as an unlawful employment of military insignia, of the improper use of the Red Cross flag and armlet (brassard) by officers and soldiers or private individuals not protected by the present Convention.

They shall communicate to one another, through the Swiss Federal Council, the provisions relative to these measures of repression at the latest within five years from the ratification of the present Convention.

GENERAL PROVISIONS.

Articles 29-33 laid down the details for giving effect to the Convention. All the principal belligerents in the Great War were signatories to it.

* * *

ADAPTATION OF THE CONVENTION TO MARITIME WAR ("THE HAGUE CONVENTION, OCTOBER, 1907").

The Signatory Powers, animated alike by the desire to diminish, as far as depends on them, the inevitable evils of war; and

Wishing with this object to adapt to maritime war the principles of the Geneva Convention of July 6, 1906:

Have resolved to conclude a Convention for the purpose of revising the Convention of July 29, 1899, relative to this question.

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Article 1. Military hospital-ships, that is to say, ships constructed or adapted by States for the particular and sole purpose of aiding the sick, wounded, and shipwrecked, the names of which have been communicated to the belligerent Powers at the commencement or during the course of hostilities, and in any case before they are employed, shall be respected, and may not be captured while hostilities last.

Such ships, moreover, are not on the same footing as warships as regards their stay in a neutral port.

Article 2. Hospital-ships, equipped wholly or in part at the expense of private individuals or officially recognised relief societies, shall likewise be respected and exempt from capture, if the belligerent Power to which they belong has given them an official commission, and has notified their names to the hostile Power at the commencement of or during hostilities, and in any case before they are employed.

Such ships shall be provided with a certificate from the proper authorities declaring that the vessels have been under their control while fitting out and on final departure.

Article 3. Hospital-ships, equipped wholly or in part at the expense of private individuals or officially recognised societies of neutral countries, shall be respected and exempt from capture, on condition that they are placed under the orders of one of the belligerents, with the previous consent of their own Government and with the authorisation of the belligerent himself, and on condition also that the latter has notified their name to his adversary at the commencement of or during hostilities, and in any case before they are employed.

Article 4. The ships mentioned in Articles 1, 2, and 3 shall afford relief and assistance to the wounded, sick, and shipwrecked of the belligerents without distinction of nationality.

The Governments undertake not to use these ships for any military purpose.

Such vessels must in no wise hamper the movements of the combatants.

During and after an engagement they will act at their own risk and peril.

The belligerents shall have the right to control and search them; they may refuse to help them, order them off, make them take a certain course, and put a Commissioner on board; they may even detain them, if the situation is such as to require it.

The belligerents shall, as far as possible, enter in the log of the hospital-ships the orders which they give them.

Article 5. Military hospital-ships shall be distinguished by being painted white outside with a horizontal band of green about a metre and a half in breadth.

The ships mentioned in Articles 2 and 3 shall be distinguished by being painted white outside with a horizontal band of red about a metre and a half in breadth.

The boats of the said ships, as also small craft which may be used for hospital work, shall be distinguished by similar painting.

All hospital-ships shall make themselves known by hoisting, with their national flag, the white flag with a red cross provided by the

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Geneva Convention, and further, if they belong to a neutral State, by flying at the mainmast the national flag of the belligerent under whose orders they are placed.

Hospital-ships which are detained under Article 4 by the enemy must haul down the national flag of the belligerent to whom they belong.

The ships and boats above-mentioned which wish to ensure by night the freedom from interference to which they are entitled, must, subject to the assent of the belligerent they are accompanying, take the necessary measures to render their special painting sufficiently plain.

Article 6. The distinguishing signs referred to in Article 5 shall only be used, whether in peace or war, for protecting or indicating the ships therein mentioned.

The succeeding twenty-one Articles are directed for the most part to the application in detail of the claim of the Geneva Convention to maritime warfare.

Article 14. The sick, wounded, or shipwrecked of one of the belligerents who fall into the power of the other belligerent are prisoners of war. The captor must decide, according to circumstances, whether to keep them, send them to a port of his own country, to a neutral port, or even to an enemy port. In this last case, prisoners thus repatriated may not serve again while the war lasts.

Article 18. The provisions of the present Convention do not apply except between Contracting Powers, and then only if all the belligerents are parties to the Convention.

Article 19. The Commander-in-Chief of the belligerent fleets shall give detailed directions for carrying out the preceding Articles and for meeting cases not therein provided for, in accordance with the instructions of their respective Governments and in conformity with the general principles of the present Convention.

Article 20. The Signatory Powers shall take the necessary steps in order to bring the provisions of the present Convention to the knowledge of their naval forces, and especially of the members entitled thereunder to immunity, and to make them known to the public.

Article 22. In the case of operations of war between the land and sea forces of belligerents, the provisions of the present Convention are only applicable to the forces on board ship.

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APPENDIX No. 4.

DESERT MOUNTED CORPS MEDICAL SERVICES OPERATION ORDER No. 5.

Information. 1. The task of Desert Mounted Corps (less A. & N.Z. Mounted Division) is to advance to EL AFULEH–BEISAN, cut the enemy's railway communication and get into position to strike the enemy's columns if they endeavour to escape in a N. or N.E. direction.

Move of Troops. 2. (*a*) The 5th Cavalry Division will be in readiness in rear of 60th Division by 0500 on Z day; the 4th Cav. Div. will be in rear of 7th Division by 0600 and the Australian Mounted Division will be in the SARONA area vacated by 4th Cavalry Division by 0700.

(*b*) When the 21st Corps have opened the way 5th Cav. Division will advance on the line TEL EDH DHRUR–HUDEIRA–the sea, by the ARSUF–MUKHALID–HUDEIRA Road, moving thence with the utmost speed to a position North of EL AFULEH by the HUDEIRA–EL ZERGHANIYEH–KH ES SHRAH–ABU SHUSHEH Road. 4th Cav. Division will advance on a line KAKON–JELAMEH–TELL EDH DHRUR by the TABSOR–EL MUGHAIR–ZELEFEH Road continuing rapidly by the JELAMEH–KH ES SUMRAH–LEJJUN Road to EL AFULEH. Thence the advance will continue on BEISAN, a detachment being sent to JISR MEJAMIE from EL AFULEH. Australian Mounted Division (less 5th L.H. Bde. detached with 21st Corps) will move into the position of readiness vacated by the 4th Cav. Division as soon as the latter is clear. It will later move to or near the NAHR ISKANDERUNEH and thence follow the remainder of the Corps being prepared to send a detachment to JENIN; it is allotted the same road as the 4th Cavalry Division.

The 5th L.H. Bde. will rejoin the Corps in the LEJJUN–JENIN Area.

Ambulances. 3. Mobile Sections of Ambulances and one Immobile Section per Division will be disposed under divisional arrangements. Each Divisional Receiving Station will consist of two Immobile Sections; it will remain under the orders of the A.D.M.S. of the division until it opens to receive patients or reaches the position specified below when it will pass to the control of the D.D.M.S.

Motor Ambulances. 4. Light Motor Ambulances, with the exception of two per division to be detached as detailed below, will be employed divisionally. It is believed that the TABSOR–EL MUGHAIR–HUDEIRA Road is fit for them. No Motor Ambulance Convoy is allotted to the Corps.

Operating Unit. 5. The Descorps Operating Unit will be attached to and move with the 4th Cav. D.R.S. to TUL KERAM. If the operating car cannot negotiate the coastal road it will return to WILHELMA and proceed to TUL KERAM by the main road when open.

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Malaria Diagnosis Stations. 6. Nos. 5 and 6 M.D.S. will be at the disposal of the A.D'sM.S. Australian Mounted and 5th Cav. Divisions respectively.

Headquarters Corps Motor Ambulances. 7. The O.C. Descorps Motor Ambulances will move with the Australian D.R.S. to TUL KERAM, proceeding to 5th Cav. D.R.S. as soon as it is established at KH ES SUMRAH. He will arrange for a supply of motor spares, petrol, and oil to be brought up to this place.

Moves of Receiving Stations. 8. Each D.R.S. will follow in rear of its division. The 4th Cav. D.R.S. on reaching EL MUGHAIR will branch off and proceed to TUL KERAM, where it will at once open to receive patients; it is hoped that it will be established by the evening of Z + 1 day.

The 5th Cav. D.R.S. will proceed via LIKTERA to KH ES SUMRAH and open to receive patients; it is expected to be established by the evening of Z + 2 day.

The Australian Mounted D.R.S. will proceed to TUL KERAM where it should arrive on the morning of Z + 2 day. It will not open unless so ordered.

Evacuation. 9. It is anticipated that few casualties will be sustained on Z day.

(*a*) Any men wounded before leaving NAHR EL FALIK will be handed over to the 21st Corps Main Dressing Station to be established just North of the mouth of NAHR EL FALIK and at EL TIREH. Earlier Ambulance arrangements of the 21st Corps are mentioned below. Casualties occurring after this will be carried forward for transference to TUL KERAM where an Ambulance of the 60th Division is expected to be by Z evening; it will receive patients until the 4th Cav. D.R.S. arrives.

Patients will be transferred to TUL KERAM until the 5th Cav. D.R.S. is established at KH ES SUMRAH. All cases will be held at TUL KERAM until the main road is open. They will then be evacuated by G.H.Q. Motor Ambulance Convoy, and by motor lorries to 15th C.C.H. at WILHELMA.

(*b*) When the 5th Cav. D.R.S. is established at KH ES SUMRAH, divisions forward of this will transfer patients to it.

When motor lorries are running they will be used for the evacuation of slight cases to TUL KERAM or WILHELMA. Serious cases will be evacuated to TUL KERAM by means of two light motor ambulances which will be withdrawn from each division; as it may be impossible to arrange this withdrawal by wire the first two cars arriving from each division will be detained by O.C., 5th Cav. D.R.S.

(*c*) Further moves of Receiving Stations will be ordered according to circumstances.

A C.C.H. is expected to be at KALKILIEH a few days after Z day, and will move later to TUL KERAM.

Every effort is to be made to use motor lorries for evacuations as motor ambulances are so few and quite irreplaceable when broken.

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Alternative Plans. 10. It is possible that operations may not follow the course planned; medical arrangements will then be altered. The following are the more possible contingencies with the arrangements necessary to meet them:—

(1) Failure of the infantry attack on the TABSOR defences with casualties in Desert Mtd. Corps.

Evacuations will then coincide with that of 21st Corps, Mobile Sections working in conjunction with Infantry Adv. Dressings Stns. which will be located at V.16.a, A.31.d., C.1. D.R.S's will align themselves with 21st Corps Main Dressing Stations at the railheads in X.18.a, and C.20.a.

From the former Main Dressing Stn. lying cases will be evacuated by train to JAFFA, from the latter by motor ambulance to WILHELMA, and sitting cases from both by train to LUDD.

(2) Numerous casualties sufficient to immobilise the tent sub-divisions may be encountered before the NAHR ISKANDERUNEH is made good. In this case A.D'sM.S. may order their Receiving Stations to open, but will at once send information of this to the D.D.M.S., giving the exact location where they have opened. This course is not to be taken unless casualties are heavy.

Light cars would then be detached from Divisions for clearing to the railheads already mentioned.

(3) Desert Mtd. Corps may attain their first objective but TUL KERAM may be denied to us.

4th Cav. D.R.S. will then open at EL MUGHAIR and wire the fact to the D.D.M.S. and A.D'sM.S. of divisions.

Australian Mounted D.R.S. will be ready to push into TUL KERAM as soon as it is practicable so that the original plan of evacuation could then be taken up. A.D'sM.S., if they receive information of the opening of the 4th Cav. D.R.S. at EL MUGHAIR will each at once order two cars from their division to this D.R.S. for rearward evacuation.

(4) Motor Ambulances may be unable to get through the road to EL MUGHAIR. They will then return to WILHELMA and proceed by the main road to TUL KERAM, when it is open, to join their ambulances. In this case it will be inevitable that tent sub-divisions will fall behind their Brigades.

Transport of Receiving Stations. 11. On no account is any transport attached to a Receiving Station to be detached from it without the prior sanction of the D.D.M.S., Desert Mounted Corps.

Medical Stores. 12. Arrangements have been made with the D.D.M.S., 21st Corps, so that dressings may be drawn from the Main Dressing Station of the 60th Division at TUL KERAM, which will be kept supplied by the M.A.C.

Indents should be sent to the nearest Receiving Station which will supply the stores and replace them from the 4th Cav. D.R.S. at TUL

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KERAM, which in turn will draw from the 60th Division Main Dressing Station. Returning empty cars will be used to carry the stores.

A.S.C. Supplies. 13. Arrangements should be made by A.D'sM.S. with the S.S.O's of divisions for the supply of petrol, car oil, and medical comforts for Mobile Sections after Z day.

Camels loaded with two days' forage, rations, and medical comforts will accompany each D.R.S.

Locations. 14. A.D'sM.S. will send information as far as possible of the positions of their Divisional Collecting Stations, whether formed of Mobile or Immobile Sections, and of any changes in these positions.

This should be done by wire and by motor ambulances or cyclists moving to the rear if there is any chance of signal communication failing.

O.C's of Divisional Receiving Stations will wire their situations as soon as they are established in any place and will confirm the wire by memo. sent by passing motor ambulance or motor cyclist.

Prisoners. 15. Prisoners whether wounded or unwounded will be searched for documents as soon as they reach a medical unit; pay-books and tezkeres[1] are not to be taken away from them; other documents will be sent to Brigade or Divisional Headquarters as soon as possible.

Signals. 16. Signal officers on Z day will be established at—

(1) S.22.a. until Adv. Corps Headquarters move forward.
(2) EL MUGHAIR.

On Z + 1 day they are to be opened at—

(1) KERKUR.
(2) EL LEJJUN.

Returns. 17. A.D'sM.S. will send a wire daily at 1700 giving total numbers of patients, including officers and other ranks whether sick or wounded, admitted in the previous 24 hours and remaining in Ambulances. The number of prisoners will be stated separately, for example:—

Admitted 122. Remaining 32.
Prisoners—Admitted 43. Remaining 30.

O'sC. Receiving Stations will send a similar wire.

18. Acknowledge copies 1, 2, 3, and 8.

R. M. DOWNES, Colonel.
D.D.M.S., Desert Mounted Corps.

Headquarters,
Desert Mounted Corps.
14/9/1918.
Issued at 2200.

[1] Identity disc.

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APPENDIX No. 5.

TABLE SHOWING THE POSTING OF AUSTRALIAN ARMY MEDICAL CORPS OFFICERS, MARCH 1915.

D.M.S., A.I.F.	..	Surg.-Gen. W. D. C. Williams
A.D.M.S., 1st Division	..	Colonel N. R. Howse, V.C.
D.A.D.M.S. „	..	Lt.-Col. G. A. Marshall

MEDICAL OFFICERS OF UNITS

Corps Staff	Col. C. S. Ryan
1st L.H. Rgt.	Capt. A. Y. Fullerton
2nd „	Capt. G. W. Macartney
3rd „	Capt. W. R. C. Mainwaring
4th „	Maj. C. C. MacKnight
5th „	Capt. J. E. Dods
6th „	Capt. A. Verge
7th „	Capt. H. Flecker
8th „	Capt. S. J. Campbell
9th „	Capt. L. O. Betts
10th „	Capt. J. Bentley
1st F.A. Bde.	Capt. A. O. Howse
2nd „	Capt. R. S. Whitford
3rd „	Capt. A. H. Marks
D.A.C.	Maj. J. S. Purdy
Div. Engrs.	Capt. H. B. Lewers
Div. Train	Capt. A. F. Jolley
1st Bn.	Capt. C. W. Thompson
2nd „	Capt. F. W. Kane
3rd „	Capt. J. W. B. Bean
4th „	Capt. A. H. Tebbutt
5th „	Capt. E. F. Lind
6th „	Capt. J. J. Black
7th „	Capt. E. W. Gutteridge
8th „	Capt. H. E. A. Jackson
9th „	Capt. A. G. Butler
10th „	Capt. H. C. Nott
11th „	Capt. E. T. Brennan
12th „	Maj. J. M. Y. Stewart
13th „	Capt. C. Shellshear
14th „	Capt. H. G. Loughran
15th „	Capt. J. F. G. Luther
16th „	Capt. R. S. McGregor
10th A.S.C.	Capt. H. H. Woollard

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FIELD AMBULANCES

1st Light Horse Field Ambulance.

O.C. Lt.-Col. R. T. Sutherland
Maj. W. M. Helsham
Capt. R. Fowler
Capt. P. Fiaschi
Capt. E. M. Ramsden
Capt. J. J. Nicholas

2nd Light Horse Field Ambulance.

O.C. Lt.-Col. H. K. Bean
Maj. D. G. Croll
Capt. W. A. Fraser
Capt. L. G. A. MacDonnell
Capt. C. F. Pitcher
Capt. J. D. Buchanan

3rd Light Horse Field Ambulance.

O.C. Lt.-Col. R. M. Downes
Capt. E. R. White
Capt. J. H. Anderson
Capt. M. W. Cave
Capt. G. E. M. Stuart
Capt. K. G. McK. Aberdeen

1st Field Ambulance.

O.C. Lt.-Col. B. J. Newmarch
Maj. R. J. Millard
Maj. E. S. Stokes
Capt. J. B. St. V. Welch
Capt. A. J. Aspinall
Capt. L. W. Dunlop
Capt. H. R. G. Poate
Capt. C. E. Wassell
Capt. W. E. Kay
Q.M. Lieut. E. St. J. Beers.

2nd Field Ambulance.

O.C. Lt.-Col. A. H. Sturdee
Maj. W. W. Hearne
Maj. C. G. Shaw
Capt. T. E. V. Hurley
Capt. B. Quick
Capt. R. W. Chambers
Capt. H. J. Williams
Capt. G. C. M. Mathison
Capt. A. V. Honman
Q.M. Capt. C. Morley

3rd Field Ambulance.

O.C. Lt.-Col. A. Sutton
Maj. H. N. Butler
Maj. G. P. Dixon
Capt. A. L. Buchanan
Capt. D. M. McWhae
Capt. H. K. Fry
Capt. H. V. P. Conrick
Capt. F. Goldsmith
Capt. B. Ingram
Q.M. Lieut. T. F. Hall

4th Field Ambulance.

O.C. Lt.-Col. J. L. Beeston
Maj. F. D. Jermyn
Maj. J. E. F. Stewart
Capt. A. J. Meikle
Capt. A. L. Dawson
Capt. J. P. Kenny
Capt. H. L. St. V. Welch
Capt. L. W. Jeffries
Capt. C. N. Finn
Q.M. Lieut. R. C. Tute

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LINES OF COMMUNICATION UNITS.

No. 1 Aust. General Hospital.

O.C. Lt.-Col. W. R. Smith
Lt.-Col. G. A. Syme
Lt.-Col. H. C. Maudsley
Maj. R. Macdonald
Maj. T. P. Dunhill
Maj. W. E. Summons
Maj. J. W. Barrett
Maj. E. S. Jackson
Maj. J. B. McLean
Maj. S. S. Argyle
Capt. H. H. B. Follitt
Capt. B. M. Sutherland
Capt. S. Kay
Capt. M. B. Johnson
Capt. H. V. Foxton
Capt. A. Alcorn
Capt. H. H. D. Turnbull
Capt. J. T. Tait
Capt. R. F. Watson
Capt. H. F. H. Plant
Capt. C. Morlet
Lieut. H. I. Carlile
Q.M. Capt. W. R. E. Sabine

No. 2 Aust. General Hospital.

O.C. Lt.-Col. T. M. Martin
Lt.-Col. J. B. Nash
Lt.-Col. J. W. Springthorpe
Maj. W. H. Read
Maj. W. C. Grey
Maj. A. W. Campbell
Maj. G. B. Carter
Capt. J. C. Storey
Capt. H. J. Clayton
Capt. J. Reiach
Capt. B. C. Kennedy
Capt. W. W. McLaren
Capt. C. G. G. Moodie
Capt. D. M. Embelton
Capt. V. Benjafield
Capt. W. M. A. Fletcher
Capt. D. S. Mackenzie
Capt. A. S. D. Barton
Capt. C. C. Ross
Capt. J. D. Norris
Q.M. Capt. C. Gray

No. 1 Aust. Stationary Hospital.

O.C. Lt.-Col. H. W. Bryant
Maj. H. A. Powell
Maj. A. Watson
Maj. T. G. Wilson
Maj. H. S. Newland
Capt. F. N. Le Messurier
Capt. J. S. Verco
Capt. J. Corbin
Q.M. Capt. R. A. Lowry

No. 2 Aust. Stationary Hospital.

O.C. Lt.-Col. A. T. White
Maj. G. W. Barber
Maj. B. T. Zwar
Capt. A. R. Haynes
Capt. V. O. Stacy
Capt. E. J. F. Deakin
Capt. W. C. Sawers
Q.M. Capt. A. E. Clarke

No. 1 Aust. Clearing Hospital.

O.C. Lieut.-Col. W. W. Giblin
Maj. S. J. Richards
Maj. J. Gordon
Capt. J. A. O'Brien
Capt. R. D. Campbell
Capt. C. N. Atkins
Capt. C. Mattei
Q.M. Lieut. E. T. Boddam

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REINFORCEMENTS AND UNALLOTTED.

Capt. J. C. Campbell
Capt. T. M. Furber
Capt. L. W. Bond
Capt. K. M. Levi
Capt. M. Yuille
Capt. T. C. C. Evans
Capt. T. F. Brown
Capt. D. C. Pigdon
Capt. C. V. Single
Capt. J. R. M. Beith
Capt. F. McIntyre
Capt. J. R. Muirhead
Capt. J. C. Wells
Capt. F. T. Beamish

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GLOSSARY

NAVAL TERMS.

"BLACK SHIP": A term applied to military transports used for the clearance of casualties by sea, and prepared therefor in varying degrees; but not—in contra-distinction from "hospital ships"—entitled to protection under the Geneva Convention. *See pp. 814-20.*

CONVOY (of ships): A number of vessels sailing together for protection under escort by ships of war.

CRAFT, SMALL LANDING: *See note 8, p. 123.*

PRINCIPAL BEACH MASTER: A naval officer of senior rank who controls all landing craft on the beach and all personnel and materiel within the naval area. He works in close co-operation with the military authorities ashore, assisted by the "Principal Military Landing Officer." His main object is to ensure the most rapid discharge and "turn round" of all landing craft consistent with meeting military requirements ashore as far as possible.

Beach Master: An officer responsible, under the general direction of the Principal Beach Master, for the rapid and safe clearing and "turn round" of the boats on his beach.

PRINCIPAL NAVAL TRANSPORT OFFICER: An officer appointed under special circumstances to take charge of Sea Transport Service.

RANK (MEDICAL OFFICERS): Titles were in order of seniority as follows:—Surgeon-General; Fleet-Surgeon; Staff-Surgeon; Surgeon. In October, 1918, these titles were changed respectively as follows:—Surgeon Rear-Admiral; Surgeon-Captain; Surgeon-Commander; Surgeon Lieutenant-Commander; Surgeon-Lieutenant. The Medical Director-General ranks as Surgeon Vice-Admiral or Rear-Admiral according to relative rank held.

RATING: The relative standing or grade of rank in the ship's company.

MILITARY TERMS.

ADJUTANT-GENERAL'S BRANCH: The branch of the staff dealing mainly with personnel. *See* Appendices Nos. 1 and 2.

ADMINISTRATIVE SERVICES: *See* Appendices Nos. 1 and 2.

AID POST: The post in or close behind the line where the regimental medical officer and details render first-aid and early treatment.

ANZAC: Derived from the initial letters of Australian and New Zealand Army Corps, for which it was originally used as the code name. It quickly assumed a wider significance and became identified with places and military formations with which both Australians and New Zealanders were associated, e.g., Anzac Beach, Anzac Cove, I Anzac Corps, II Anzac Corps, Anzac Mounted Division, etc.

ARMY, AND ARMY CORPS: *See* MILITARY FORMATIONS.

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ARMY SERVICE CORPS: The "corps" (q.v.) pertaining to the service whose duty it is to "supply" and transport the army.

BARRAGE: A curtain of fire, moving or stationary, put down by guns or machine-guns, to cover movement by our troops or to break up a hostile attack.

BASE: The place where are situated, organised, and controlled the main stores, dépôts, and reserves of an army in the field: and from which its lines of communication lead.

BASE, ADVANCED: The area within which may be situated the advanced dépôts of men, animals, munitions, food, and materiel of war; whence issues are made to the field formations.

BATTALION: *See* MILITARY UNITS.

BIVOUAC: A temporary encampment of troops without tents or huts.

BRIGADE (Infantry, cavalry, light horse, artillery): *See* MILITARY FORMATIONS.

CACOLET: A litter in which sick or wounded are carried upon mules or camels. *See pp. 562-4.*

CASUALTY (CASUALTIES): As regards the individual soldier—any occurrence in his military life that affects his service therein: as "casualties," wastage in the effective strength of a force through battle (killed and wounded) and disease (deaths, and sickness of a permanent or temporary nature); "battle casualties," losses in action, killed, wounded, "missing," and prisoners of war.

CASUALTY CLEARING STATION: *See* MILITARY UNITS.

COLLECTING STATION (DIVISIONAL): "The place where slightly wounded men, able to walk, are collected, treated, fed, and rested before evacuation or return to their units." (*R.A.M.C. Training, 1911.*) In the Palestine Campaign (Light Horse and Cavalry) it took the place, commonly, of a "main dressing station": in France it was usually known as the "walking wounded collecting (or dressing) station." *See also p. 619n.*

CORPS: An organised body of officers and others charged with special duties, such as those associated with a technical or administrative service. *See also* MILITARY FORMATIONS.

DEAD GROUND: An area which, though within range of the enemy, cannot be seen by him, or reached by direct fire.

DIRECTOR-GENERAL OF MEDICAL SERVICES: The highest grade (in distinction from rank) in the organisation of the administrative side of the medical services of Great Britain and the Dominions. In succession downward, status in the medical service is defined by the designations, Director-General, Director, Deputy-Director, Assistant-Director, and Deputy-Assistant-Director of Medical Services. Each of these grades is associated commonly with a definite degree of authority, as well as with a status corresponding to the designation. In the British Army, however, the latter was the more clearly defined and operative. See Appendices Nos. 1 and 2, *also p. 436.*

DIVISION: *See* MILITARY FORMATIONS.

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DIXIE (Camp kettle, large): The oval metal pot containing twelve quarts, provided in the British army for cooking purposes.

DRESSING STATION: A centre behind the lines to which wounded are sent from the regimental aid-posts to have immediate surgical or medical treatment before being carried or directed to the casualty clearing station.

ECHELON: A formation of successive and parellel units facing in the same direction, each on a flank and to the rear of the unit in front of it. The arrangement of troops as in the form of steps, with parallel divisions one in advance of the other.

As applied to organisation—the disposition of a military headquarters or administration at the seat of war in sections; designated from the front to the base "first," "second," or "third" Echelons.

ESTABLISHMENT: A permanent military organisation expressed in terms of its component personnel or animals. "Peace" or "War" establishments:—the reduced or augmented naval or military forces in time of peace or of war.

FIELD DRESSING: The small packet containing bandage, dressing, etc., which each soldier carries in a pocket specially provided in his tunic.

FIELD RANK: The military ranks from Major to Colonel, both inclusive. *See* RANK.

FIELD SERVICE REGULATIONS ("F.S. Regs."): The official manual of the British Army which lays down the principles that govern organisation, administration, and operations.

FIGHTING TROOPS: Infantry, cavalry, machine-gun corps, pioneers, trench mortars, artillery (including ammunition columns), flying corps, tank corps, and engineer field units (including field signal units). The headquarters of commanders of fighting troops are "fighting units."

FORMATION: A military organisation comprising a number of "units" (similar or dissimilar). *See also* MILITARY FORMATIONS.

GAS HELMET: A woollen hood with eye- and mouth-pieces impregnated with chemical substances designed to protect the wearer against poison-gas. The first protection invented was a **gas-respirator** to be tied over the mouth: improvements were the **gas-helmet**, and later the **gas-mask** attached by a tube to a box-respirator slung on the chest. *See Volume II.*

GENERAL HOSPITAL: *See* MILITARY UNITS.

GENERAL STAFF: The branch of the staff dealing with operations, training, and information about the enemy. *See* Appendices Nos. 1 and 2.

HEADQUARTERS, GENERAL ("G.H.Q."): The headquarters of the Commander-in-Chief of the forces in the field.

HOSPITALS: *See* MILITARY UNITS.

HYGIENE: The science of maintaining and increasing the health of mankind. (*Army Manual of Sanitation.*)

INVALID: Sick or wounded past the stage of active treatment, but incapacitated.

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LIAISON (Military): Communication (touch) between units or arms; liaison officer, an officer sent to another unit or formation to keep touch with it.

LINES OF COMMUNICATION (L. OF C.): The system of communication by rail, road, and navigable water-ways between an army and its base or bases, inclusive, together with the district through which they pass.

MALTESE CART: A small two-wheeled cart, which formed part of the medical equipment of a battalion. *See p. 11.*

MESS-TIN: A metal pan of one quart capacity carried by each soldier, in which food can be received or cooked; it consists of two parts serving as plate and dish.

MILITARY DISTRICT (Australian Commonwealth): A sub-division of the Commonwealth for military defence purposes, each "district" being roughly conterminous with a "State." *See sketch on p. 19.*

MILITARY FORMATIONS:

Army: The largest military formation. (*See* Appendix 1.) Also applied to the armed military forces of a nation.

Army Corps: The military formation next below an Army. *See* Appendix 1.

Division: The smallest formation of army organisation that contains in itself all the essential branches and services of the military system. Infantry divisions: *British*—three infantry brigades (12 battalions) with two, three, or four brigades of artillery (about 70 guns), etc.; three Field and one Field Park company of engineers, with a divisional signal company; and the associated services of maintenance; until the last year of the war 18,000 men. *French*—three infantry regiments (9 battalions), about 40 guns, 16,000 men. *American*—three brigades, each of three regiments, with artillery, about 27,000 men. *German*—three infantry regiments (9 battalions), about 70 guns, 15,000 men. *Turkish*—three infantry regiments (usually 9 battalions), 40 guns, about 11,000 men.

Division of cavalry or light horse (British), three brigades (9 regiments)—full strength (with headquarters, two brigades of horse artillery, engineers, supply units, three light horse field ambulances, etc.) about 8,000 men.

Brigade (Infantry): A formation consisting of four battalions with headquarters (Cavalry and Artillery are also organized in brigades).

MILITARY UNITS:

Battalion: The normal infantry "unit" (q.v.)—full strength, with transport etc., 1,017; full fighting strength, 895. British (and from January 1915 Australian) battalions consisted of four companies, each of four platoons; with headquarters and accessory services. Usually commanded by a lieutenant-colonel.

Regiment of Cavalry (British): The unit of cavalry (or light horse) corresponding to a battalion of infantry: full strength of a light horse regiment 546; full fighting strength 510.

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Hospital, General: The largest medical military unit. *War Establishments 1914* laid down two 520-bed hospitals for each division in the field, with establishment of 21 officers, 43 female nurses, and 143 other ranks. *War Establishments, Part VIIA, France,* laid down the following:—

1,040 beds—27 officers, 73 nurses, 162 others.

1,560 beds—32 officers, 78 nurses, 194 others.

2,500 beds—41 officers, 125 nurses, 138 others, and 124 women (domestics).

Hospital, Stationary: 200 beds—Establishment 8 officers, 86 other ranks. *War Establishments, Expeditionary Force, 1914,* laid down two for each division of infantry. 400 beds—Establishment 16 officers, 27 nurses, 103 others. *War Establishments, Part VIIA, France.*

Casualty Clearing Station: 200 beds—War Establishment 8 officers, 77 other ranks, female nurses attached later in the war. (The organisation and duties of this and other important medical units are laid down in *Field Service Regulations. Volume I.* and *R.A.M.C. Training.*)

Field Ambulance (with infantry): Light Horse Field Ambulance. The first medical unit behind the regimental medical detachments. (*See pp. 8 and 24.*) The final establishment of a Light Horse or Mounted Field Ambulance in the Egyptian Expeditionary Force, 1918, was—

Personnel—officers 6, other ranks 121; total, 127.

Animals—riding horses 40, draught horses 62, donkeys (for tent sub-division of one section only, and waggon orderlies) 22.

Vehicles—motor ambulances, 4 heavy or 8 light; light ambulances (horsed), 6; waggons, general service 4, limbered 2; water-carts, 2; motor cycles, 2; bicycles, 2.

NEUROSIS: PSYCHOSIS: The significance attached in this work to these terms is that adopted, without regard for etymological consistency, by the majority of writers on psychiatry and psychopathology. "*Neurosis:* A general term applied to certain syndromes or symptom-complexes expressing abnormality in the exercise or inhibition of functional activity in the central nervous system, but unassociated with recognisable histo-pathological changes, or, inherently, with asocial behaviour. *Psychosis* (*also psychoneurosis*): A general term applied to disease or derangement of the central nervous system inherently associated, in greater or less degree, with asocial behaviour.

NO-MAN'S LAND: The area between the two opposing front line trenches, or front lines.

OPERATING UNITS: *See p. 636 and Volume II.*

ORDNANCE: The department which supplies arms, equipment, clothing, etc.

ORGANISATION (*Military*): The military machine (its structure); "administration"—its direction and control; "service"—the machine in action.

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OTHER RANKS: Soldiers other than commissioned officers.

PARK: A unit dépôt of technical stores (munitions, or other materiel of war). For vehicles, etc., a place authorised for stationing.

QUARTERMASTER-GENERAL'S BRANCH: The branch of the staff responsible for supplies and the transport of troops and materiel. *See* Appendices Nos. 1 and 2.

RAILHEAD: A locality on the railway (usually at the nearest point to the force which is to be served) where ammunition and supplies were, before and during the Great War, transferred to "ammunition parks" and "supply columns." *See* "REFILLING POINT."

RANK: Commissioned ranks in the army were, in order of seniority, as follows:—Field-Marshal; General; Lieutenant-General; Major-General; Brigadier-General; Colonel; Lieutenant-Colonel; Major; Captain; Lieutenant; Second-Lieutenant. During the Great War these were held by medical officers with the exception that "surgeon-general" took the place of all general ranks. The lowest rank to which first appointments of medical officers were made in the A.A.M.C. was that of captain. Under Royal Warrant a surgeon-general ranked in relation to combatant officers with lieutenant-generals, if holding appointment as Director-General, Army Medical Services and recommended by the Army Council, otherwise with major-generals. In February, 1918, the rank of surgeon-general was abolished and in the British Army and Australian Military Forces officers holding it were appointed lieutenant-generals, or major-generals according to their status.

RECEIVING STATION: *See pp. 633-6.*

REFILLING POINT (Supply): The place where the motor vehicles (3-ton lorries) of the "Divisional Supply Column" (Post war, 3-ton lorries of the Supply Section of the Divisional Maintenance Company, A.S.C.) delivered, in bulk, the supplies received by them at railhead: and where these supplies (broken up into "unit" lots) were taken over by the general service waggons (horse) of the Divisional Train (Post war, 30-cwt. lorries of the Supply Company, Divisional A.S.C.); to be delivered at the various "Delivery Points" to the "Unit" Quartermasters. *See Plate, p. 208.*

Artillery (Ammunition): The place where the motor lorries (30-cwt. cavalry, 3-ton infantry) of the "Divisional Ammunition Park"[1] (Post war, motor lorries of the Ammunition Section, Maintenance Company, A.S.C.) delivered the ammunition received by them at railhead; and where this ammunition was taken up by the G.S. waggons of the Divisional Ammunition Column (Post war, 30-cwt. lorries of the Ammunition Company, Divisional A.S.C.); to be delivered at the "Delivery Point"—which might be either at or behind the batteries—either direct or after transfer to "limbered" waggons.

REGIMENT (of Cavalry): *See* MILITARY UNITS.

REGIMENTAL AID POST: *See* AID POST.

[1] In this single instance "Park" was used of materiel in transit.

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RENDEZVOUS: Place where supply columns or ammunition "parks" were met by representatives of the units concerned and directed to refilling points. In operations, pre-arranged meeting or assembling place.

SALIENT: A curve in the line of battle, projecting towards or into the enemy's line.

SAND CARTS: *See p. 562.*

SANITATION: The application of the laws, principles, and facts of hygiene to the varied conditions under which mankind has to live and work all over the world. (*Army Manual of Sanitation.*)

SAP: A military work similar to a "trench" but dug forward from an existing trench or from some cavity by men working below the level of the surface.

SECOND (usually as "Seconded"): Temporary retirement from a military appointment for the purpose of special duties. (Pronounced with emphasis on the second syllable.)

SERVICE: A military department organised and administered for a distinctive duty or service. *See also* ORGANISATION.

STATIONARY HOSPITAL: *See* MILITARY UNITS.

STATUS: *See* DIRECTOR-GENERAL OF MEDICAL SERVICES.

SUPPLY: Used as a convenient abbreviation to designate the provision of food, fodder, and fuel to the force in the field. Supply Column. *See* REFILLING POINT.

UNIT: A single organised group of military personnel, regarded as an individual member in a system of groups, similar or dissimilar to itself. *See also* FORMATION.

ZERO HOUR: The hour fixed for launching troops in an attack.

ARABIC AND TURKISH WORDS.

ARABIC: ABU—Father: AIN—Spring; BEIT—House; BIR—A well; BIRKET—A pool; DEIR—Monastery; HOD (pronounced hoad)—A depression in the desert containing palm trees and water; JEBEL (or Gebel)—Mountain; JISR—Bridge; KATIB—Sandhill; KHURBET—Ruin; NAHR—River; NEBI—Prophet; SHEIKH—Saint's tomb; TEL—Hill or mound; TIBBIN—Compressed hay or fodder; WADI (or wady)—A watercourse frequently dry.

TURKISH: BAIR—Slope or spur; BURNU—Cape or point of land; DERE (pronounced derry)—Valley; KUYU—A well; TEPE—Hill.

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